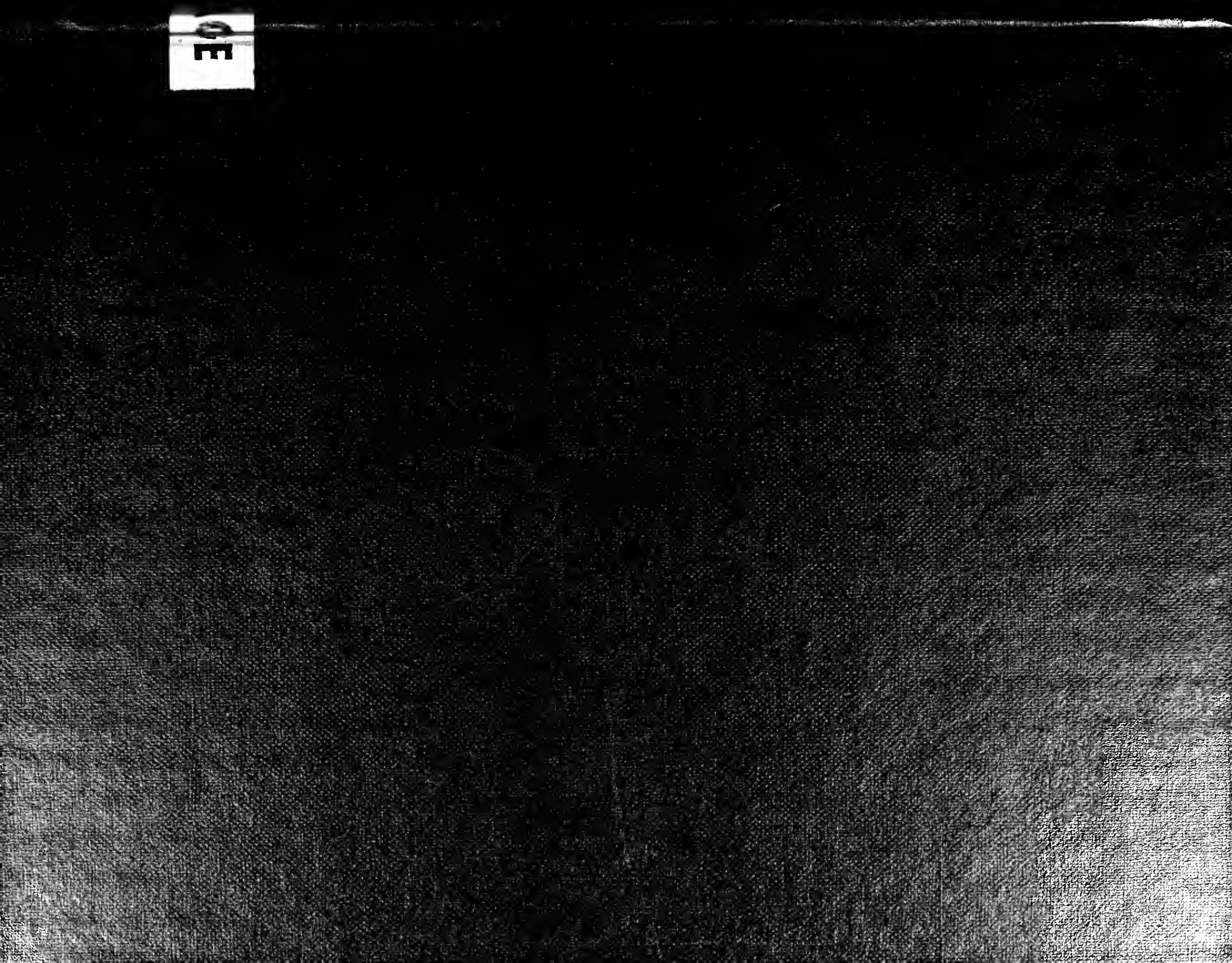

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THE RESTORATION OF LATE NINETEENTH-CENTURY BATHROOMS: A TWO PART STUDY

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INTRODUCTION

The subject of nineteenth-century sanitary facilities was chosen because it is an area in the field of historic preservation that requires further research. Part I of this thesis concentrates on the bathrooms at The Willows, which were chosen for historical study at the request of the curator, Nancy Strathearn. Although this historic site has been thoroughly researched and interpreted, the plumbing systems are still not fully comprehended.

The restoration of late nineteenth-century bathrooms for private residences was researched as it is a topic of interest to the owners of all Victorian houses. While Part I of this thesis is a historical account, Part II is an analysis of historic bathroom restoration in general and is intended as an aid to the Victorian house restorer.

Investigation for this thesis began in September, 1991. A variety of sources were consulted, including archival documents from The Willows, nineteenth-century trade catalogs and plumbing literature, and contemporary books and periodicals focusing on plumbing, bathrooms, and interior decoration. Repositories located at the University of Pennsylvania Libraries, Philadelphia; the Winterthur Museum Library and the Hagley Library, Wilmington, Delaware; the Free Library of Philadelphia; and the Avery Library at Columbia University, New York City, were used for this research. The plumbing system at The Willows was examined and photographed, and Nancy Strathearn provided the backround information. Historic house museums were visited to research and photograph the bathrooms, and to obtain information from the curators. These include Leah Burt from Glenmont, Henry Duffy from Lyndhurst, John Gunser from the Asa Packer Mansion, and Edward Gordon from the Gibson House. Other curators who provided information

were Renee Tribert Williams from the Harriet Beecher-Stowe House, and Marsha Rooney from the A.B. Cambell House. Nancy Strathearn provided photographs and information from the Grant-Kohrs Ranch. For documentation of restored Victorian bathrooms, the residence of Matt and Judie Schultz was visited, and Meredith Boone and Paula Williams were interviewed over the phone.

PART I:

SEQUENCE OF SANITARY FACILITIES AT THE WILLOWS

I. INTRODUCTION

In order to interpret the bathrooms at The Willows it is necessary to document the complete history of the plumbing system. This report can be used to recreate the appearance of the bathrooms for the current interpretation date or any other date that might be chosen.

Brief History of The Willows

The Willows is a Victorian house museum in Morristown, New Jersey. It was built by Ashbel Bruen in 1854 as a farmhouse for the family of Joseph Revere, a grandson of Paul Revere.[1] There are many remarkable aspects, both architecturally and socially, about The Willows. The design was adapted from a house in Gervase Wheeler's book, Rural Homes (1851). (See Figure 1.) It is a rare, early example of the innovative Gothic Revival known as the "Stick Style." (See Figure 2.)

During the 1870's, Charles Foster, a prosperous New York City stockbroker, rented The Willows. In 1881 he bought the property from the Reveres, and lived in the house with only his daughter, Caroline, for nearly fifty years. After he died in 1927 Caroline Foster lived alone in the house, until her death in 1979; her will gave the property to the Morris County Park Commission. The house and the 168 acres of Fosterfields are listed on both the New Jersey and the National Registers of Historic Places.[2]

The site of The Willows has been little changed through its modern history, and as a result of the Fosters' frugality, the house itself was barely altered. There were few mechanical changes and virtually no structural ones. The interesting

personalities of the owners were expressed in the house's finishes and furnishings. The restoration of The Willows began in 1980 and was virtually completed by 1991, returning the house to its 1880-1910 appearance. This target period was recommended in the 1981 historic structures report. According to the 1983 furnishings report prepared by Gail Winkler, this target date also coincided with the plan for the farm restoration and interpretation. Furthermore, the photographic evidence is best for this period, and most of the furniture, wood floors and plumbing fixtures are of this period. In 1980, there were few house museums in the United States depicting the late nineteenth century, and a nearby museum, Acorn Hall, was restored to a mid century date, thus providing variety for area museum visitors.[3] Although the house was restored to the time of the Fosters, many very important features of the Revere era remain including the trompe l'oeil decorative painting in the entry hall and dining room. To visit the house is to go back in time.

II. NINETEENTH-CENTURY PLUMBING ARRANGEMENTS

The 1854 plumbing system at The Willows was progressive for its time at the beginning of an era of dramatic change in this branch of mechanical systems technology. Sanitary facilities first appeared in Minard Lafever's Modern Builder's Guide (1833), and by the 1840's many architectural pattern books such as Andrew Jackson Downing's Cottage Residences (1842) contained baths and water-closets, but only in the more costly models. Gail Winkler, an historic interior design consultant, stated that "Baths and water closets only began to appear in the majority of plans in architects' pattern books during the 1860's," the time of the advent of the "sanitary movement."[4] While most structures of that era had no indoor bathrooms, The Willows was built with two rooms specifically for plumbing fixtures (rooms 205 and 206), plus two cisterns. Although Wheeler's plan--upon which The Willows is based--contained no bathroom, he had written that "a home can be neither perfect nor comfortable without their adequate provision."[5] Only three of the ten designs in Rural Homes contained sanitary facilities, and for this specific house plan, he suggested that a partition of Room 5 on the chamber floor could be a bathroom, "as the space is ample to allow it, and the nearness to the kitchen below would permit the bathing apparatus to be supplied with water at a trifling expense."[6]

As mentioned above, Wheeler was not the earliest advocate of indoor plumbing. Revere was probably aware of the popular books of architectural criticism by Andrew Jackson Downing such as Cottage Residences, and The Architecture of Country Houses (1850). Downing had written, "No dwelling can be considered complete which has not a water closet under its roof...," although he acknowledged their additional expense.[7]

He had also recommended a bathing room, as it "requires little space, and may be easily constructed in any cottage."[8] His plans included sanitary facilities in villas, but in only a few cottages and farmhouses. The Willows can be considered a small villa- or an elaborate farmhouse.

Other books of the time, such as Henry Hudson Holly's Country Seats and Modern Dwellings (1852) and Samuel Sloan's The Model Architect (1852), also included sanitary facilities in some cottages and villas. Two years after The Willows was constructed, Henry W. Cleaveland, and William and Samuel D. Backus advised readers of Village and Farm Cottages (1856):

> Health, comfort and decency, all demand that every dwelling, however humble, should have a water-closet under its roof, accessible with ease and without exposure to the external air. If the place be supplied with running water and facilities for drainage, such arrangements are made with very little trouble.[9]

Location and Planning of Plumbing Facilities

Architectural pattern books of the mid nineteenth-century also advised on the location and arrangement of sanitary facilities within the dwelling. Most sources showed bathrooms on the second floor near the rear of the house. Wheeler believed they should be on the chamber floor (i.e., the second floor) in order to be "really useful."[10] In 1850, Downing advised that in villas, the second floor should contain bathing-rooms and a water closet.[11] Holly, Cleaveland and Backus, and Sloan in Sloan's Victorian Buildings (1852), generally place bathrooms and water-closets at the back of the house above the kitchen or pantry (which contained the hot water

tank), to stack the water systems, from the attic cistern to the kitchen service areas and near the servants' rooms, to bannish odors from the better rooms. Keeping the noisy water-closet as far away as possible from the family's rooms was also desirable.[12] In Villas and Cottages (1857), Calvert Vaux wrote that "on arriving at the chamber floor [in a small villa] we naturally expect to find a bath-room and water-closet."[13] Recommendations were also made for these rooms to communicate with hallways and/or the dressing rooms of chambers.

Many designs in the architectural pattern books either separated the bath from the water closet, with the lavatory either in the chambers (especially in earlier designs), with the bath or water-closet or by itself in a separate room, or all three fixtures in were placed in one room. This variety in arrangement persisted through the nineteenth century. Samuel Hellyer recommended in The Plumber and Sanitary Houses (1893) that there should be two bathrooms per house--one for the family and the other for the domestics (as at The Willows today).[14] However, until the turn of the century, when most other sanitary problems had been solved, plumbing experts such as William Paul Gerhard still advocated both the separation of the two fixtures and the combination of all fixtures into one room. Both arrangements have their advantages and disadvantages, as discussed by Calvert Vaux. Combining the fixtures saved space within the home and provided more room in the bathroom but was inconvenient for use by more than one person.[15] Vaux made use of both designs; his "country houses" comparable to The Willows contained either full baths, or separated bath-rooms and water-closets.

Ventilation and light were important considerations in the design of early sanitary facilities. "Sewer gas" escaping from the fixtures' traps, especially in water-closets, was a major problem. Wheeler recommended a ventilation system, with

apertures at the ceiling and floor level for air circulation.[16] Plumbing experts, such as William Paul Gerhard and James Lawler, stressed that a bathroom, and especially a water-closet, must have a window for ventilation and visibility.[17] However, this ventilation system was not efficient. During the winter the windows were shut, and when they were open, cross-ventilation carried the unhealthy odors into the rest of the house. Cleaveland and Backus recommended ventilation through a separate sewer vent pipe.[18] Both bathrooms at The Willows have windows, but subsequent changes have obliterated any evidence of a sewer vent pipe. Neither the Reveres nor the Fosters left written record on this subject.

Nineteenth-Century Bathroom Finishes

Most nineteenth-century water-closets, lavatories and bath-tubs were encased in wood for practical as well as aesthetic reasons (see Figure 3). Not only did the case hide the mechanical apparatus and pipes, its finish might suit the decoration of the house and to show off the taste of the owners, as bathroom fixtures were increasingly treated as furniture. The casing also supported the sheet metal tubs and marble lavatories. Samuel Sloan, in his 1850's pattern books, and George E. Woodward and Edward G. Thompson, in Woodward's National Architect (1869), included in specifications for cottages and villas that the plumbing fixtures be encased or "panelled" with wood, especially walnut.[19] Water-closets and bathtubs were sometimes installed on platforms, about eight inches above the floor.

By the 1870's the practice of encasing plumbing fixtures was falling into disrepute by sanitarians who considered it important to keep every surface

accessible for maintenance and repair. The middle class, who could afford these fixtures, wanted ones that were sanitary and easy to clean.[20] By the 1880's, new water-closet designs, such as the hopper, and the free-standing cast-iron bathtub, did not need to be hidden in casing. In Sanitary Arrangements for Dwellings (1874), William Eassie compromised by stating that the "wooden casing or framing should be made so as to come readily asunder."[21] In Palliser's New Cottage Homes and Details (1887) the water-closetswere specified as "set open," and there was no mention of wood encasements for lavatories and bathtubs.[22]

Late nineteenth-century bathrooms had narrow tongue-and-groove hardwood floors, which were stained and varnished and left bare except for a few small rugs. Many floors were covered with oil cloth, for protection from water.[23] At the end of the century tiled flors were advocated for sanitary purposes, although hardwood floors were still popular. Gerhard supported hardwood floors with small rugs.[24]

At The Willows during the 1890's Foster replaced the original wood floors in the bathrooms and many other rooms with narrow oak flooring. There was no written evidence of an oil cloth so for interpretation the floors were left bare except for the small cotton rag bath mat.[25]

Foster probably installed the narrow beaded wainscoting at the same time as the flooring. Beaded wainscoting was a common finish in bathrooms during the last quarter of the nineteenth century. It often matched the wood casings of the fixtures and, like them, was stained and varnished. Also popular at the time in homes of the wealthy was tiled wainscoting (along with tiled floors and bathtubs), yet again the Foster's frugality and taste prevailed, and tile was never installed in either bathroom, thus preserving an earlier finish. Above the wainscoting (according to

paint analyses) the walls were finished with oil-based paint, which was common at the time for bathrooms.[26]

Water Supply

Many public waterworks were constructed during the nineteenth century. By 1791 Morristown had one of the first public water systems in the country, but the piping did not reach as far as The Willows.[27] Instead, the plumbing system at The Willows relied on rainwater supplied by two cisterns. The first was a brick-lined cistern underground in front of the kitchen wing, accessible by a manhole (see Figure 4). The second was a wooden lead-lined cistern in the attic. A third reservoir was built atop a large mound of earth about one hundred yards behind the house after Charles Foster purchased the property (see Figures 5 and 6). The cisterns were typical water supply installations, while the reservoir is unusual. Underground cisterns, like the one at The Willows were:

> ...masonry lined pits located a few feet away from the house. In-ground cisterns provided the best protection against freezing, kept water at a constant cool temperature, and minimized damage from leaks. However, the in-ground cisterns were also the most expensive to build.[28]

Rainwater from the roof suppled the underground cistern, and a force pump in the cellar raised the water from the underground cistern to the attic cistern (see Figure 7) and from there through the rest of the house by gravity. The hilltop reservoir was filled with water pumped from a pond fed by a natural spring down the hill from the house, to a pumphouse in the barnyard, then up to the reservoir.

The top of the reservoir is level with the cistern in the attic of The Willows, enabling the water to be gravity fed to the house.[29] All three reservoirs were used by Caroline Foster for most of her life, until the well system was installed at an unknown date. They remain in place today although the house was connected to the municipal water system in 1990.

This private water system at The Willows was typical of country houses of prosperous families. The Charles Pearson House by John Notman, constructed in Trenton, NJ, in 1849, was fitted up with a wood framed, lead-lined cistern in the garret over the bath and water-closet which was supplied with water from nearby springs by a ram pump.[30] In Rural Homes Wheeler stated that where water was obtainable from a natural source by the use of a ram, "the most perfect arrangements can easily be suggested...." One such system was to have a "small cistern above the bathing-room supplied by a force pump from below."[31] In Homes for the People (1855) Wheeler advised the installation of the attic cistern near exterior walls and chimney stacks for support and to prevent freezing, and above an area of the house that would be least harmed by accidental leakage or overflow.[32] J.C. Loudon in Cottage, Farm and Villa Architecture and Furniture (1833), recommended that cisterns supply water to only one story below, as pressure to a greater height could cause leakage.[33] An 1899 article in The Architectural Record advised that cisterns should be placed in a well-lit and ventilated area that would be easily accessible for cleaning and repair.[34] The specifications for a reservoir in a villa illustrated in The Model Architect suggested "two inch planks" paneled in front, lined with lead, and located in the attic over the bathroom.[35]

According to James J. Lawler, author of Lawler's American Sanitary Plumbing (1896), "the indirect or tank supply system" was better than the direct

supply available in cities from street mains. The indirect system was regulated "by a ball or float cock in the tank, the tank being open on top to the atmosphere," and all fixtures, which would last longer with this system, were supplied from the tank by gravity (see Figure 8). For these reasons Lawler believed that even with a street main, a supplemental tank was necessary. He acknowledged that cast iron tanks were in common use at the end of the nineteenth century, that the average plumber did not know how to install lead, and that lead was poisonous. However, he felt that lead was still the most sanitary material for cisterns because it would wear the longest. He recommended keeping the tanks filled with cold water to prevent the formation of lead oxides and subsequent corrosion.[36] According to William Eassie different functions (such as bathing and cooking) should have separate cisterns, and these cisterns should not be lined with lead.[37] It is unknown if the two cisterns at The Willows eventually supplied water for different functions. However, Caroline Foster drank water contaminated with lead and other poisonous materials for most of her life, and yet she died at the age of one hundred and two.

Since it would be dangerous to leave the manhole of the underground cistern open all the time, perhaps it could be opened periodically during tours so the public could view the inteior, or replace the cover with thick safety glass. The hilltop reservoir can be showed to visitors, but the attic cistern cannot be visited for reasons of a fire code violation (there are not two means of egress).

III. PLUMBING ARRANGEMENTS AT THE WILLOWS

Existing Plumbing Arrangements at The Willows

There are two bathrooms at The Willows, the "museum bathroom" (room 205) that is used for interpretation, and the "staff bathroom" (room 206) that remains functional and is not on the tour. During restoration, the bathrooms were studied to determine the sequence of plumbing, but no conclusive evidence was found. The existing fixtures in room 205 were assumed to date no later than the 1920's, which was close enough to the target period to remain until further research was conducted.

The museum bathroom contains a white, cast-iron, claw-foot enamelled bathtub, a white porcelain lavatory, a white, vitreous china low-tank water-closet on a marble slab, a medicine cabinet, a shaving stand, a radiator, a reproduction cast-iron register, a reproduction kerosene lamp, and a linen closet. (See Figures 9-13.) The finishes include narrow-board hardwood flooring and beaded wainscoting, a woven rag rug and plaster walls painted light brown. All of these elements were considered appropriate to the restoration period except the sink. The staff bathroom contains a white cast-iron claw-foot bathtub, a white porcelain lavatory, a new toilet added in the 1980's, and finishes similar to those in the other bathroom (see Figure 14-15).

The only alterations to the museum bathroom were the reinstallation of a mahogany commode seat found in the attic, the reproduction of a mahogany tank cover resembling similar tanks c.1900 to hide the vitreous china tank that was of a more recent date, and the installation of the kerosene lamp and heat register.

1854-1890 Plumbing Arrangements at The Willows

Revere might have been influenced to plumb The Willows because his grandfather, Paul Revere, had been, among other things, the president of the Boston public health board in 1797.[38] In addition, Charles and Caroline Foster moved to the country from New York City purportedly as the result of the deaths of Charles Foster's wife and two sons, caused by the unhealthy conditions in cities prevalent at the time. Mrs. Foster died of tuberculosis, and the sons of diphtheria.[39] Finding a safe haven with sanitary conveniences may have been a priority for both families.

Revere followed Wheeler's advice and Room 5 became a bathroom. The other bathroom was placed in an extension of the house not part of Wheeler's original plan. Although each room today contains a bathtub, sink, and toilet, the larger bathroom may have originally contained only a bathtub (pipes leading from the attic cistern seem to indicate this [see Figure 15]) and a lavatory while the smaller room held the water-closet. Most of Wheeler's plans show this arrangement, which he described as more "commodious for use" than placing both functions in the same space.[40] The transformation at The Willows from single purpose rooms, one for a bathtub and possibly a lavatory, and another for a water-closet, to two, fully-equipped rooms represents the variety of arrangements discussed earlier. The Fosters could have desired to separate their plumbing facilities from the servants' by adding extra facilities. Another possibility is that the bathrooms were divided by gender--Charles Foster using one, and Caroline Foster and the housekeeper using the other. The original locations and dimensions of room 205 and 206 easily permitted the new arrangements.

The original water-closet at The Willows was definitely a mechanical toilet, based on the mechanical apparatus still attached to the attic cistern (see Figures 16), the discovery of a surviving wooden seat and lid (see Figure 17), and the date it would have been installed. It was probably similar to the one illustrated in Cottage Residences (see Figure 18). The types of mechanical toilets available at mid-century were the pan closet, the valve closet and the plunger closet (see Figures 19-20). Mechanical water closets were inefficient, odorous, and unhealthy. The pan closet was the most common but was condemned later by sanitarians "because the lower water receptacle retained hidden filth and the movable pan arrangement permitted escape of impure air."[41] Few (if any) mechanical closets survive and so it is not unusual that the one at The Willows was removed. The original water-closet seat (2'-6" long x 1'-8" wide) rested on a wood case whose marks are still visible below the seat. The cut side edge of the seat indicates it was once wider. A horizontal mark on the wainscoting 2'-9" wide and 1'-7" above the floor next to the toilet in room 206 could indicate the location of the water-closet. The seat would have fit in this corner, and the notch could have been cut to accomodate the wood trim of the door jamb. Also, there was evidence of water damage on the ceiling below the toilet, and the flooring under the toilet appears to have been replaced (see Figure 21).

Two wooden planks found in the attic of The Willows may have been used to encase a water-closet. One is 2'-2" long x 1'-2" wide, and the other is 4'-3" long x 1'-2" wide. Both have simple decorative grooves (see Figure 22). Two screws are attached to the longer plank but do not pierce the wood. Together the planks could have formed a box in the corner of a room where a water-closet lid could have rested on top. However, the typical depth of a water-closet does not match the 2'-2"

measurement of the smaller plank, and 1'-2" is very low to enclose a water-closet, unless the box rested on a base.

If The Willows is restored to its original c.1854 appearance, the water-closet seat and lid should be installed in room 206. It is not likely an original mechanical fixture would be found in a salvage yard. The water-closet case can be modeled on those in nineteenth-century plumbing catalogs (see Figure 23). Its original appearance could also be achieved following some of the recommendations for a pan water-closet recently re-installed c.1865 at the John Wood Mansion in Quincy County, Illinois. A pan closet can be reproduced in tin, which should be painted white, the historical finish. A pipe can be installed from the water-closet through the ceiling or just let into the wall to appear to rise to the cistern.[42] The water-closets installed c.1877-1884 at the Asa Packer Mansion in Jim Thorpe, Pennsylvania (see Figure 24) could also be used as models. Although they were not mechanical toilets, and had their flushing apparatus in an overhead cistern, the appearance of the bowls and casings is appropriate. For the reinstallation of the existing seat, a casing can be constructed using new planks, the mysterious wood planks found in the attic, or salvaged planks.

In addition, a disinfectant container (see Figure 25) could be reproduced for the house museum. Reproductions of nineteenth-century cleaners such as hot soda (for cleaning pipes), sand soap (for removing stains from marble and china), whiting (for cleaning fittings), and ammonia, should be part of the display.[43]

There are many possibilities for the configuration of the c.1854 bathtub. One clue includes a tantalizing 1890s photograph showing Caroline Foster standing next to a sheet metal tub, which was removed from the site before the restoration. Loudon recommended that a tub should be against a wall to receive the plumbing

a tub, some this size did exist, such as a tub in a hotel bathroom drawn by Thomas Ustick Walter (see Figure 27).[46]

If the c.1854-1890 appearance of room 205 is restored, the existing flooring and wainscoting would have to be removed, and a wood-encased sheet metal tub should be fabricated and installed in the same location as the existing bathtub, as there are original lead pipes indicating where the first bathtub rested (see Figure 28). Either the wood planks from the attic should be used, or an interpretation of a tub should be constructed based on the photo of Caroline Foster with the bathtub, and those in trade catalogs or surviving examples, such as the c.1890 tub at the Grant Kohrs Ranch in Deer Lodge, Montana (see Figure 29), and the c.1896 tub at the restored Victorian home of Matt and Judie Schultz in Landsdowne, Pennsylvania (see Figure). The bathtub can also be modeled on those described in pattern books. Bath cocks can be found in salvage yards and should be nickel plated.

Marble slab lavatories were the most popular type during the Victorian era. Joseph Galloway, wrote in Gasfitters and Plumbers' Companion (1875): "A marble-top washstand, with hot and cold water attachments, is the most useful and ornamental part of a plumber's handiwork."[47] Clues to the date of the marble lavatory found in the attic at The Willows are its dimensions, the existing basin cock, and a manufacturer's mark under the basin--a "C" inside a triangle. The sink is 30" long x 26" wide (see Figure 30). By the 1870's plumbing catalogs offered lavatories that wide, but not that deep; in fact there are none more than 22" wide.[48] The marble lavatory at The Willows is very similar to the lavatory in Carpenters' Hall in Philadelphia (see Figure 31), which according to records was installed in 1860. The basin cock at The Willows is very similar to two in the Hayden and Gere Company (New York, 1866) trade catalog (see Figure 32). This type could function in only

and have hot and cold supply pipes accessible to the bather. He also advocated that the tub "should not be less than six feet long, two feet and a half wide at the top, and two feet wide at the bottom." He added that it could be a wood case lined with cast-iron, wrought-iron plates riveted together, copper, or lead, the inside should be painted to resemble a light marble, and the outside should be finished to match the rest of the room. Also, a step could be built to get into the tub, and a cord hung from the ceiling used to raise oneself in and out of the water.[44]

The wood-encased bathtub was introduced in this country in the 1840's and was usually lined with tinned or planished copper or lead which was painted white or marbleized. Its base rested on the floor. Specifications in The Model Architect (1852) were for lead-lined tubs, while Woodward's National Architect (1869) recommended tinned and planished copper.

Bathtubs of various manufacturers hardly differed from one another (see Figure 26). There were two types: most shown in trade catalogs were "French tubs," which were loped at one end, and square at the other near the drain and faucets. "Roman tubs" had two sloped ends. Bathtubs were offered in lengths ranging from 4 1/2 feet to 6 feet, and depth and width from 1'-8" to 2'-1". The metal lined, wooden tub was still the most common type at the fourth quarter of the nineteenth-century by manufacturers such as Haines, Jones and Cadbury of Philadelphia (1893), and Charles Millar and Son of Utica, New York (1901). Although the copper lining was easily damaged it retained heat well, was cheaper, and weighed less than the new enamelled and porcelain tubs (see below).[45]

It is possible that the wood planks mentioned previously were used as a case for a metal lined bathtub at The Willows. Although 4'-3" seems to be very short for

two positions--on and off, and a pair of basin cocks consisted of hot and cold water fittings. This type appeared in trade catalogs into the 1880's, including the 1888 J.L. Mott catalog.

These clues suggest that even if the marble lavatory was not original to the house it could have been installed by the 1860's. One of the matching slabs of marble stored in the attic with the lavatory would have been the backsplash (see Figure 33). Two pairs of cast-iron quatrefoil brackets measuring 1'-1/2" x 1'-3" and 1'-0" x 1'-2" were found in the attic with the marble slab (see Figure 34). The largest slab, measuring 1'-3" x 3'-4" was probably a shelf in the bathroom, as it has marks revealing it was supported by a pair of brackets. One pair is now painted cream, and the other is light green. Both should be analyzed for earlier colors. Wheeler recommended a flat black, green or bronze for cast-iron "furniture."[49]

There are no marks indicating the slab rested on a wooden case, but this is still a possibility since it was used during the 1860's and 1870's. However, by the 1880's open plumbing was more common as a result of the sanitary movement. William Paul Gerhard recommended in 1889 that the "marble slab should be supported on ornamental iron or brass brackets, fastened to the walls, instead of having the usual cabinet work....[50] (see Figure 35). The lavatory at some point was probably supported by one of the pairs of cast-iron brackets.

Vitreous china basins were imported from England or France until the last quarter of the nineteenth-century, when they began to be made in America. This type of basin was described in the July 13, 1878, issue of The American Architect and Building News:

> Our ordinary wash-bowl apparatus consists of a marbled earthenware bowl, fourteen, fifteen, or sixteen inches in outside diameter, with a brass socket and strainer cemented into the bottom, secured beneath a marble slab by three clamps, and the joint filled with plaster of Paris....Hot and cold water cocks are fixed into the marble...

The author also described a plug of "earthenware, brass, or rubber...and a chain to pull it up, fastened to a chain-stay bolted down to the marble....[51]

The marble slab lavatory is appropriate to the current restoration date and should be reinstalled in room 205 on the brackets, where the present lavatory is located. There is evidence of previous piping under the existing lavatory (see Figure 36), but there are no marks or holes in the wainscoting indicating where the lavatory was; they are probably obscured by the present sink. To create the early appearance of room 205, the lavatory can be reinstalled with a wood case, which could be modelled on the c.1890's lavatory at the Grant Kohrs Ranch in Deer Lodge, Montana (see Figure 37), the lavatory at the Asa Packer Mansion (see Figure 38), and those in plumbing trade catalogs (see Figure 39).

Before reinstallation, the lavatory needs repairs. Historically marble was given a matte finish, as polished marble was easily stained by water and abrasive cleansers that removed the gloss and cause pitting. Stains, scratches and pits can sometimes be removed.[52] Replacements for the missing basin cock, plug and chain may be secured in salvage warehouses specializing in plumbing hardware. Although reproduction plumbing companies manufacture "period" faucets, they do not offer this early design. Some reproduction companies will custom copy an existing fitting; this, of course, is the most expensive option. The basin cocks should be replated in nickel as it was the typical nineteenth-century finish for brass fittings.

In summary, room 205 probably contained a metal-lined wood encased bathtub and the existing marble lavatory originally. Room 206 probably contained a mechanical water-closet including the existing seat and lid.[53]

Turn-of-the-Century Plumbing Arrangements at The Willows

The water-closet in room 205 is probably appropriate to the restoration period at The Willows. Unfortunately there are no marks of the manufacturer, but it could date from the 1890's or the 1900's, judging by those in plumbing trade catalogs. It is similar to water-closets offered by the the Sears and Roebuck Company in 1902, and the J.L. Mott Company in 1908 (see Figure 40). In his journal on February 7, 1907, Charles Foster wrote, "began fixing bathroom." Fifteen days later he noted, "Plumbers appear to be through w/bathroom." This length of time suggests that more than simple repairs were being done--new fixtures may have been installed. The mahogany tank cover suggests the 1890's, but the toilet itself could date from the 1907 bathroom renovation. Underneath early fixtures "save all trays," or "safes" were often installed in the floor, mostly of marble, to catch accidental overflows. Although by 1890 elliptical toilet bowls were common and safes were not required, the water-closet in the museum bathroom sits on a marble slab. Perhaps it is an element from a previous water closet.

There is no evidence of a water-closet in room 206, that would have existed between the original one and the one installed in the 1940's that was removed for the restoration. Although this is insignificant now, since the room is not open to the public, in the future there should be further investigation.

Footed cast-iron bathtubs were available by the 1860's, first enameled by 1873, and dominated the plumbing market by the 1890's.[54] At The Willows an unglazed, cast-iron tub was used--until recently--as a watering trough in the farm yard; unfortunately it has been removed from the site. This bathtub could have been in room 205 after the sheet metal tub and before the present bathtub, which may have been installed during the February, 1907 renovations. The existing tub is labelled "Standard Sanitary Manufacturing Company," of Pittsburgh, which was formed by a merger in 1899. Fixtures and fittings in the 1904 and 1909 Standard Sanitary Manufacturing Company catalogs were almost identical to this fixture and its faucets, so they might have come from a catalog between these dates (see Figures 41-42). The footed bathtub began to lose fashion after World War I because of the difficulty in cleaning under and around it. The present bathtub cannot date later than 1928, the year the Standard Sanitary Manufacturing Company's changed its name to American Standard. Since Foster records contain no plumbing bills listing the installation of a bathtub between 1907-1928, it is likely that the bathtub was installed in 1907, within the target restoration period of The Willows. Therefore it is appropriate and can remain in room 205.

An earlier target date would be difficult as there are few clues for the previous tub. The original lead pipes in room 205 indicate that the existing tub now rests where the first bathtub rested--any intermediate tub must have also been in this location. There is no visible evidence of the existence of a wood encased metal-lined tub on the existing floor or wainscoting, and one should not be reconstructed. These late nineteenth-century finishes could be obscuring marks of fixtures that existed only before the target period.

The white factory enamel glaze on the interior and white painted exterior, a late nineteenth, early twentieth-century scheme, is appropriate for the 1880-1910 target period. Cast-iron claw-feet were often bronzed, or painted the color of the tub, as done here.[55] A paint analysis should be undertaken for the bathtub and its feet.

The white enameled cast-iron claw-foot bathtub in room 206 is labeled "Standard Sanitary Manufacturing Company, Louisville, 4 1/2, 2833." Since there is no reference to this bathroom in a plumbing bill or Charles Foster's journal, it is possible the tub dates from after the restoration period. However, this room is not open to the public, so a later date of these fixtures is not a concern.

Although enameled "whiteware" lavatories were available by the 1870's, the one in room 205 probably dates from the early twentieth century, when sink designs began to be simplified, with rounded edges and almost no decoration. This lavatory was manufactured by the Standard Sanitary Manufacturing Company, bears the label "SSM DM Works," and could also date from the 1907 renovation. Also, a plumbing bill proves that on March 24, 1910, a new basin costing $34.80 was installed. Similar lavatories in the 1904 catalog of the Standard Sanitary Manufacturing Company cost approximately this amount. One nearly identical to the sink in room 205, is illustrated in the 1909 Standard Sanitary Manufacturing Company catalog (see Figure 44). It is more expensive, but it has nickel-plated brass legs, which the sink in question does not have. Since there are no plumbing bills or records in Charles Foster's journal of a bathroom installation relating to a sink, between 1910-1928, it can be assumed that the sink in room 205 dates from 1907 or 1910, within the restoration period.

The lavatory in room 206 also dates from the twentieth century. It is also from the Standard Sanitary Manufacturing Company, and is labelled "P4207-1821." It is very similar to one in the 1919 catalog of the Standard Sanitary Manufacturing Company, and it may be from the next catalog, judging from the serial numbers (see Figure 45). Since there is no reference to this bathroom in a plumbing bill or in Charles Foster's journal, it is possible the sink dates from after the restoration period. However, this room is not open to the public, so the later date of this fixture is not a concern. It is in good condition and works properly for its purpose.

In summary, room 205 probably contained the existing toilet, bathtub and lavatory, plus all the finishes and furnishings, in the early twentieth century. They are all appropriate to the target restoration period, and are similar to those in a bathroom arrangement displayed in the 1902 Sears and Roebuck Company Catalog (see Figure 46). The bathtub and lavatory in room 206 were probably installed later, in the 1910's or 1920's.

IV. CONCLUSIONS AND RECOMMENDATIONS

The Willows contains fascinating evidence of early plumbing arrangements. Even fixtures and finishes that are no longer in use were saved, such as the marble slab lavatory and the water-closet seat and lid. The intact cisterns and reservoir, original pipes, and marks on bathroom surfaces, plus Charles Foster's journal and ledger, old photographs, and plumbing bills are all important clues. However, many mysteries remain, and the conclusions in this report are in no way absolute. Further research is encouraged.

The restoration of room 205 and 206 at The Willows involves philosophical, technical and financial issues, such as deciding what is truly appropriate, if there is enough knowledge to lead to the reinstallation of past fixtures and finishes, and how much changes and further research will cost. The present arrangement in this house museum includes an office in one of the bedchambers on the second floor and the use of room 206 as a staff bathroom. This situation is satisfactory for the museum's proposes and is unlikely to change. Although the fixtures, finishes and furnishings in room 205 were probably installed during the target restoration period of 1880-1910, there is still the possibility that they weren't. However, the appearance of this room is appropriate, and the reinstallation of older fixtures might prove too costly.

During the initial analysis of The Willows, the flooring and wainscoting in the bathrooms should have been carefully removed to investigate what lies underneath. Now it is unlikely that this will occur, as the worth of the disruption and cost is questionable.

PART II:

RESTORATION OF LATE NINETEENTH-CENTURY BATHROOMS FOR PRIVATE RESIDENCES

I. INTRODUCTION

There is undoubted enthusiasm for preserving Victorian homes, whether as house museums or private residences. The majority of these projects ignore one of the most important historical features, the bathroom. Many house museums even leave the restoration of the bathrooms as the last project or don't deal with them at all. The bathroom is taken for granted today, while only one hundred years ago it was considered a luxury. We use it every day (more than once!), guests see it, and it is a place of refuge and privacy. There are even magazines devoted to its decoration. The sanitary facilities of the nineteenth century represented great advances in domestic technology, and reveal the personalities of the people who utilized them. To restore a Victorian home authentically the bathrooms must be carefully preserved or reconstructed. Others have documented the history of the bathroom. This chapter is an aid to those who wish to restore late nineteenth-century bathrooms in private residences.

The late nineteenth century was an era of dramatic change. While pre-1880 fixtures represented improvements in water delivery and drainage that had just been introduced in this country, and some were handsome, most were neither efficient nor sanitary. By the 1880's sanitary arrangements were controlled by building codes.[56] Late nineteenth-century bathrooms also had their own character, much of which was discussed in Part I of this report (see Appendix F). By the turn-of-the-century, bathrooms appeared much as they do today. The technical problems were solved, and fixtures were "modernized," appearing "as the machines they were," and not as ornamental furniture.[57] Bathrooms became standardized, the range of materials narrowed, became more utilitarian, and fixtures shrank.[58] The textured

and colorful finishes of the Victorian bathroom decor were transformed to stark smooth white surfaces. Carolyn Flaherty states in The Old-House Journal:

> The technology of bathroom plumbing has really advanced very little since the beginning of the century....Today's fixtures tend to be less well designed for the body. Tubs are too small, wash-basins are too low with the faucets placed so close to the back that you can't get your hands wet, and the hardware is awkward to handle.[59]

Many owners of Victorian houses have undertaken the challenge of restoring their bathrooms with results ranging from being completely non-historic to museum quality work. According to various writers, the Victorian bathroom is making a comeback after years of being considered ugly and old-fashioned. This is a recent phenomenon, starting in the late 1970's, perhaps as a result of the historic preservation trend in general plus a reaction against the styles of the mid twentieth-century. The same trend towards restoring Victorian bathrooms is occuring in England, judging by numerous articles in British journals on the subject.

II. PROS AND CONS OF RESTORING LATE NINETEENTH-CENTURY BATHROOMS

Restoring Victorian bathrooms requires time, patience and expense. One has to live without the use of the room for sometimes months at a time, and fixtures and finishes often have to be cleaned, repaired or replaced. It can be the most difficult room in an old house to restore. Clem Labine acknowledges this by stating that "Plumbing is something that most old-house owners would rather not think about."[60] Another problem, according to one source, is that the "Serious revival of Victorian bathrooms must confront late twentieth-century bathroom fantasies...."[61] The final product, if authentic, will lack modern conveniences such as a whirlpool bath, a contemporary shower which provides more space, a wide expanse of a vanity top, and inexpensive, practical products such as formica, fiberglass and vinyl. Even the former editor of The Old-House Journal, who has an old bathroom, misses the modern bath.[62] Another writer in this magazine feels that Victorian bathrooms are impractical, and that "no sensible person would wish a Victorian bathroom on a friend."[63]

However, restoring a late nineteenth-century bathroom not only keeps it in character with the rest of the house; it can create a very comfortable room, is a very rewarding process, and will increase the value of the home. It can also be less expensive than constructing a modern bathroom, if salvaged fixtures and fittings are used instead of reproduction ones. Bathroom fixtures are the only antiques which are cheaper than their reproductions.

III. RESTORING A LATE NINETEENTH-CENTURY BATHROOM

There are many steps to restore the bathroom. The first is to decide on the level of authenticity. Even when desired, this choice will depend on the existing condition of the room, the amount of time and effort planned, and the restoration budget. Compromises are anticipated when there is no evidence of the original layout, fixtures and finishes of the bathroom, and there is a deficiency of time for the research and restoration. Restoring the bathroom to a period later than the date of construction is appropriate in the case of a pre-1870 house, as bathrooms were inefficient prior to this date, but a twentieth-century house should not be retrofitted with a Victorian bathroom.

Finding a plumber who specializes in old bathrooms can be the next step. This can be difficult, and hasty decisions should not be made. While conversing with one plumber who said he knew about old bathrooms, it was apparent that he didn't. A plumber can be efficient, but must show also appreciate historic bathrooms. Asking for references is a must.

Also important in the initial stages of the restoration process is research concerning the house in general, its original water supply and drainage system, its former inhabitants, and the sanitary facilities that were common in the neighborhood during the nineteenth century. Then the bathroom can be focused on specifically. If the fixtures and finishes appear "old," periodicals related to the history of sanitary facilities and interior design, and trade catalogs should be consulted to ascertain dating. Nineteenth-century architectural pattern books are also important. If the house in question is in one, the book will not only reveal where the original bathrooms were, but will show the location of the original

fixtures, and might even have specifications for both fixtures and finishes. If the house is not from a pattern book, a general idea on the location and arrangement of the bathrooms will be helpful. Primary sources such as the original plans and specifications of the house, family documents and photographs can provide valuable clues. These sources can be found in libraries, historical societies and among practitioners of architecture and historic preservation. Victorian house museums might have original bathrooms. Consultants who specialize in the field can be hired for advice. Completing this research will also reveal how knowledgeable the chosen plumber is.

Investigate the bathroom. Carefully remove inappropriate fixtures and finishes to see what evidence is revealed underneath, such as the original wainscoting and flooring and the location of the original fixtures. Leave any evidence of early fixtures intact, even if they will not be replaced. If the original flooring has not been covered, but is loose or damaged, it could mean that there is a hidden water problem. Some old fixtures can be repaired and refinished. There are an abundance of stripping, repairing and cleaning methods and products available. If the wall finishes are to be removed the pipes can be examined for leaks or deterioration, which cause the greatest problems in the bathroom. Water pressure and the sturdiness of the fixtures should also be examined. Cast-iron and porcelain fixtures are very heavy; the structure that supports them should be checked. (See Appendix G for repair sources.)

An individual trained in bathroom design, such as an architect, an interior designer, or a certified bathroom designer, should be hired when the original layout of the bathroom is not apparent, or one wishes to expand the area of the bathroom, or create a bathroom in another room, as poorly planned bathrooms have defects

that are costly to correct. Creating a bathroom in a room not originally intended for one has historic precedents. Many dressing rooms and small bedrooms in the nineteenth-century were transformed into bathrooms in houses that did not originally have them.

Finally the fixtures, fittings, finishes and accessories can be chosen. These can be original to the house, salvaged, refinished, or reproductions. Many restorations are a combination of all four. Of course it is desirable to have the original elements. Next is the search for salvage. There are many sources for salvage, such as architectural salvage dealers, junk yards, metal scrap yards, antique shops, flea markets, yard sales, and properties that have just been condemned. Some demolition contractors sell salvage rights to the public, or have their own salvage yards. Beware of yards that buy old property for demolition only for the value of the salvage. While the contents of the building might be saved, the structure itself is lost.

Not only are salvaged products less expensive than new ones, they can be fun to acquire and visually very appealing. The best salvaged fixtures have their original hardware intact. Solid porcelain and cast-iron should be crack-free. Many companies will refinish damaged fixtures and fittings, while others offer those already refinished. These options can be costly, but are no more expensive than purchasing reproductions. Miller's International Antiques Price Guide can be consulted for comparison shopping.[64]

There are many companies that offer reproduction bathroom fixtures, fittings, accessories and finishes (see Appendix G). However, they offer a limited variety and most pieces are not line-for-line copies. The typical supplier will offer only one variety of bathtub, a few types of shower conversion kits, one type of

lavatory in a few styles, one type of high-tank toilet, and a few styles of fittings. Comparing illustrations in nineteenth-century trade catalogs with reproduction catalogs will help the restorer decide on the level of authenticity. Other companies offer custom-made bathroom items not available in reproduction catalogs. This is obviously an expensive option.

Fixtures for Late Nineteenth-Century Bathrooms

Mechanical water-closets were unsanitary and inefficient. By the 1870's hopper closets were available, in which the flushing was accomplished by the water pressure from the cistern (which contains the mechanical parts) near the ceiling.[65] Also available were washout and syphonic jet closets. These types were not as efficient as the forthcoming washdown closet, which is the flush toilet as we know it today. It was invented in 1889.[66] The sanitary earthenware bowl was manufactured in the United states by the 1880's (previously imported from England).[67] Water-closets manufactured in the 1890's were either two-piece low-tanks, or high-tanks (see Figures 47-48).

Mechanical water-closets should only be salvaged for museums. Their cases can be reconstructed around standard toilets, for visual authenticity, but would make them difficult to clean or repair. It is possible to use a salvaged bowl from the 1870's as long as it is oval, not round. (The centrifugal force created by the flushing action may force the water out of the round bowl.)[68] Salvaged water-closets are available, but will probably need their hardware retrofitted. It is possible to achieve the appearance of a late nineteenth-century water-closet by constructing a wooden seat

and lid with legs over any bowl (see Figure 49). Reproduction high-tank water-closet kits are oversimplified versions of their Victorian predecessors. However, the basic forms of the overhead tank, bowl and pipes are appropriate. These new high-tank toilets are more efficient than most modern standard toilets, as they use half of the amount of water. High-tank conversion kits are also available for existing toilet bowls.

From 1875 to 1900, as free-standing water closets became common, many bowls were decorated with colorful patterns such as birds and flowers, or embossed, or shaped to resemble creatures like dolphins (see Figure 50).[69] Originals of these types can be difficult to locate in the United States (they are offered refinished by many English companies), but some reproduction companies offer expensive copies.

Claw-foot, cast-iron bathtubs were enameled by 1873 (prior to this date the interior was painted, which was difficult to clean, and had to be repainted often or would rust).[70] Solid porcelain tubs were also available by the 1880's, and were more expensive and extremely heavy (see Figure 51). In The Old-House Journal, Stephen Del Sordo claims that by the 1890's sheet steel tubs were offered galvanized and enameled, and that they were both expensive and structurally unsound (see Figure 52).[71]

The precursor to the stationary bath was the free-standing bath placed in front of the fireplace (or almost anywhere else in the house). Carolyn Flaherty claims that many of the subsequent types followed this arrangement and were placed in the middle of the larger bathrooms.[72] However, this arrangement is not found in nineteenth-century house plans, nor do any survive in existing documented houses. Typical arrangements were tubs placed adjacent to a wall, with shower fittings either at the head of the tub, or on the side. Side fittings hid the pipes in the

wall, but were more expensive, since additional plaster and carpentry work was needed. Many tubs had rubber shower hoses attached to the faucet, and by the 1890's shower heads, rods and fittings were available. Also common by then was the shower stall, consisting of a tiled booth with fittings similar to those in shower baths. The elaborate "needle bath" was a luxury item that is still being enjoyed by guests at the "1024 Washington" inn in Bath, Maine. (See Figures 53-58 for examples of tubs and showers).

The interior of cast-iron tubs were enameled white. Before the 1890's, the exterior was often painted a light color, generally white or off-white, as a result of the sanitary movement. The claw-feet were either painted the color of the tub, bronzed or nickel plated. Many early bathtubs had wood rims. Some of the more expensive Victorian bathrooms contained tubs decorated with patterns or bands, such as the single, wide gold band (see Figure 59 and Appendix F).[73]

Cast-iron bathtubs are available salvaged, refinished, or as reproductions. Porcelain tubs are more rare and more expensive. They also absorb the heat from the water. According to Del Sordo, steel tubs of a higher quality than their predecessors are reproduced today and are inexpensive. I still have yet to learn of one used in a restoration. For a tub placed against a wall without the original shower fittings, there are conversion kits offered by reproduction companies. Shower conversion kits can be installed with existing or new tubs. They are not authentic reproductions, however. Shower rods of the late nineteenth-century were a circular hoop, while reproductions follow the perimeter of the tub. Companies specializing in bathroom fixture decoration can reproduce the patterns on late nineteenth-century bathtubs. Some trade catalogs, such as the 1888 J.L. Mott Iron Works catalogue, were printed in color. Reproduction cast-iron claw-feet are

offered plated in brass, chrome, or finished in white. Although attractive, both brass and chrome are inappropriate.

Bathtubs encased in wood were also common, especially in the third quarter of the nineteenth-century. Most were lined with either copper, tin or iron, in continuous sheets or plates riveted together. More practical was the wood case lined with ceramic tile or a cast-iron claw-foot tub. Although wood-encased bathtubs are attractive and not difficult to reproduce, if there is no evidence that the bathroom had an encased tub other options can be considered as they are not practical. Copper dents easily and is difficult to repair, and sheet iron rusts quickly. The joints of riveted plates deteriorate. Even if fiberglass, enameled cast-iron, or tile is used to line the case, the wood is easily damaged by water. Hidden leaks can result in sanitary problems.

The early stationary lavatory resembled its precursor, the washstand, which was usually located in a bedchamber. (Washstands were often recommended for the bedchamber until the end of the century.) The lavatory was a marble slab, resting on a wooden case, with an undermounted basin. As with the bathtubs, the basins were often colorfully decorated (see Figures 60-61). By the 1880's the plumbing was left exposed for sanitary reasons, and the marble slab and basin were anchored to the wall or supported by cast-iron or brass brackets or legs (see Figures 35, 60-64). The popularity of the marble slab lavatory lasted until the early twentieth-century. This type can be salvaged or reproduced today. Most reproduction plumbing companies do not offer marble slab sinks; they usually have to be salvaged or custom-made. They should be mounted 36" above the floor, braced to wall studs or mounted with toggle bolts, with a slight slope towards the fron to prevent water from running back to the wall.[74] Installing an antique basin and fittings in a

Victorian-era washstand (or even another piece of furniture resembling a washstand) is no difficult, and would be appropriate, especially in a pre-1880 home. However, valuable antiques should not be converted.

Vitreous china and enameled cast-iron pedestal lavatories were not marketed until late in the nineteenth century (see Figure 65). They are available today salvaged or through reproduction companies. In fact, the latter usually offer lavatory designs limited to the pedestal sink.

If the salvaged fixtures lack fittings, salvaged or reproduction faucets and handles (also known as basin cocks) can be found. Nineteenth-century faucets were a pair of basin cocks with no mixer, as at The Willows (see Figure 30). By the end of the nineteenth century many fittings also consisted of two handles and a mixer. The stem faucet, also known as the compression faucet, allowed "for a continuous range of water flow from fully on to fully off." Most standard lavatories today use disc, ball, and cartridge fittings, that have been in use for fifty years.[75]

Nineteenth-century fittings were commonly nickel plated brass or iron. In a few lavish interiors they were plated in silver or gold. Handles were either valves, called "levers," or screw down cocks in the "cross" style (see Figures 66-68). By the end of the century porcelain handles were available, sometimes labeled "hot" and "cold".[76] Chrome plating was not offered until the twentieth century. For a restoration, it is advisable to use standard materials such as PVC within the walls, while the exposed metal pipes should be nickel-plated.

Nineteenth-century fittings are salvageable. They should be thoroughly cleaned by being "boiled out" at a radiator shop. Most reproduction plumbing companies offer fittings, but few are actual reproductions and most are plated in brass or chrome, not nickel. The author of Beyond the Bath claims that this "adds

new life and sparkle to the subdued colors and materials of yesteryear."[77] Although this may be true, it unnecessarily compromises the historic appearance.

Finishes for Late Nineteenth-Century Bathrooms

The historic appearance of the bathroom depends not only on the fixtures, but also on the finishes. This is achieved with the materials used for the flooring, wainscoting, wall coverings, window treatments, including wood, tile, marble, enamel, paint, wallpaper, and rugs. Victorians did not skip the bathroom while decorating their heavily ornamented and luxurious homes. Alison Kyle Leopold claims that "...many prosperous Victorians of the 1880's and 1890's were beginning to express the decorative spirit of the age by devoting considerable energy to the embellishment of their bathrooms."[78] However, a simple unadorned bathroom is certainly appropriate in a modest Victorian home.

Most late nineteenth-century bathroom floors were of narrow tongue-and-groove hardwood boards, while more modest floors were of random-width softwood boards. The only floor coverings were small cotton rag rugs. Wall-to-wall carpeting was non-existent in the bathroom, but many floors were covered with patterned oil cloth.[79] The beaded wood wainscoting matched the flooring. Both were varnished, stained, painted or grained. Some floors were "spatter painted," with several colors, a finish used in the recreation of the bathroom at the Harriet Beecher-Stowe House in Hartford. By the 1890's, when the bathroom had become a "temple of hygiene," ceramic tiles were substituted for wood as they are easier to clean and are impervious to water (see Figure 69). Floors were often of one or two-inch white

hexagonal tiles, and black or colored tiles were used in combination with white to create patterns. Rectangular tiles were also common, especially for wainscoting and included an embossed or colorfully patterned border. While many hardwood floors were replaced with tile for practical reasons, the wood wainscoting either remained or was replaced with tile also.

Usually there is a trace of the original flooring under the subsequent layers, which can be repaired or reproduced. If the original material is unknown, either new or salvaged wood or tile can be installed, depending on the age of the house and the preference of the owner. Salvaged wood flooring is available, and there are suppliers that specialize in remilling existing flooring. This can cost more than new wood, however. Salvaged tiles can be found although finding a sufficient number may be very difficult. Reproduction tiles are available; one company offers sheets of pre-arranged one inch hexagonal tiles for ease of installation.

By the late nineteenth-century water-resistant wallpapers (known as "sanitas" or sanitary papers) were manufactured for the bathroom. Stenciling was also used in late nineteenth-century bathrooms. Victorian reproduction wallpaper is available in many patterns, as well as mass-produced patterned paper for a less expensive option.

Salvaged wood trim for baseboards, window and door surrounds is available, along with new millwork. Salvaged old doors are better and cheaper than new ones, and can be trimmed to fit a doorway. Window sashes however, are more difficult to match in an existing opening. Many late nineteenth-century bathrooms had stained glass or frosted panes. Stained glass is an excellent window treatment, but can be expensive. "Antique" wavy window panes are inappropriate for late nineteenth-century house as plate glass was available. Roller blinds, curtains, and wood

shutters provided privacy for clear glazing. Roller blinds were not much different than they appear today, and curtains were of muslin or lace. Window shutters with louvers are also appropriate to the time period, and provide light an ventilation as well as privacy, all things which are crucial to a bathroom. In the late nineteenth-century waterproof and washable cotton shower curtains were available, as they still are today. Glass doors are obviously inappropriate for the late nineteenth-century bathtub or shower.

Accessories for Late Nineteenth-Century Bathrooms

Lighting fixtures, towel racks, bathtub racks, sponge holders, toothbrush holders, soap dishes, mirrors, medicine chests, toiletry sets and scales all added to the rich character of the Victorian bathroom (see Figures 70-73). All are available either as salvage or reproductions. Original light fixtures, such as gas or kerosene lamps, can be easily converted for electricity. Although pre-electric light levels were very low, it is not expected that the restorer will reproduce an historic appearance in this manner. A metal toilet paper holder such as the one at Lyndhurst in Tarrytown, New York (see Figure 72) can be found in a salvage yard or reproduced, to hold either a roll of continuous paper or loose sheets. Additional elements in the bathroom were furniture such as bureaus (for storing linen) and chairs. A few bathrooms even had fireplaces with ornamental mantelpieces.

IV. EXAMPLES OF LATE NINETEENTH-CENTURY BATHROOM RESTORATIONS IN PRIVATE RESIDENCES

Matt and Judie Schultz restored the bathroom in their 1896 Queen Anne home in Lansdowne, Pennsylvania (see Figures 74-75).[80] It is located at the rear of the house, accessible from the back stair landing and the master bedroom. Original to the bathroom were the cast-iron, dolphin-footed bathtub with its pine casing, the matching pine wainscoting, the stained-glass window, and the medicine cabinet. To restore the room, they first removed the shag carpeting and plywood subfloor, exposing the original narrow-board hardwood flooring, and stripped several layers of paint off the wainscoting and bathtub casing, using "Peel-Away," methylene chloride, and a lot of sanding.[81] Measured drawings of the room were recorded, and the wainscoting was temporarily removed in order to insulate the walls. Each piece of wood was numbered to ensure proper reinstallation. Both the wainscoting and bathtub casing were refinished with marine varnish to match the original finish and to protect the wood from moisture damage. The plaster walls were in good shape, but had to be scraped because layers of non-compatible paints were peeling. The walls were covered with reproduction wallpaper by Bradbury and Bradbury.

Although the Schultzes desired historical accuracy, minor compromises were made for practical purposes and time constraints. The original flooring had been severely damaged. Instead of installing a new hardwood floor, they chose the more practical hexagonal tiles appropriate to the turn-of-the-century. Also sympathetic to the period but not a restoration was the installation on the ceiling of a pressed paper similar to anaglypta, which historically was only utilized for walls. The pedestal sink acquired at Philadelphia Architectural Salvage was installed in the location of

the original sink, but dates from the early twentieth-century. Two hooks on the wall near the ceiling, and holes in the wall near the floor indicated the location of the original high-tank water-closet. A reproduction toilet kit was installed using a modern bowl, although the Schultzes wanted to use an old one. The salvaged lighting fixture over the sink dates from the early twentieth century.

Restoring the bathroom was extremely hard work. One maintenance problem persists--the wood around the bathtub has to be revarnished about once a year. However, the Schultzes are very pleased with the outcome. Guests enjoy the bathroom, especially the noisy toilet. However, Mr. Schultz claims that if they hadn't found so many original features and the pipes in good shape, they might have taken another route.

A second example of bathroom restoration was conducted by Paula Williams and Joe Mulay, who converted their 1904 Queen Anne house in Stanhope, New Jersey, into an inn.[82] There was only one original bathroom, so just as most nineteenth-century householders might do, they added a few more in "unused corners, large closets and extra space under the eaves...."[83] The restoration of the original bathroom was extensive. They wanted to create a Victorian appearance while providing an efficient facility for the guests. After layers of linoleum were removed, they discovered the original white hexagonal tile floor that was in good condition, although the linoleum adhesive had to be removed. The wall tiles were also in good condition.

Ms. Williams claims that there was evidence of water supply for two bathtubs. She says that this was to accommodate a large family. This is an intriguing image, but it is probable that two bathtubs were consecutive installations in different locations, as there are no turn-of-the-century architectural pattern books or

plumbing manuals illustrating this layout. A matching pair of claw-foot, cast-iron tubs were installed in the "original" locations, with brass reproduction fittings. The couple is pleased with the outcome and the reaction they get from guests. However, other bathrooms in the bed and breakfast have a "Victorian flair" but contain non-historic showers for convenience. Ms. Williams recommends that if original Victorian showers are restored they should be acquired in excellent condition. If not they can have leakage problems and are difficult to repair.

A third example is one undertaken by James and Meredith Boone in 1976 who meticulously restored their 1887 Queen Anne home in Springfield, Massachusetts.[84] It was very important for them to restore the house, including the bathrooms, to its original appearance. Fortunately the original architectural plans survived, revealing the location of all the sanitary facilities and fixtures. The original marble lavatory, beaded wainscoting, and radiator remained in the full bath on the second floor, adjoining the master bedroom suite and dressing room. The claw-foot, cast-iron bathtub had been in the house since 1920, and the old high-tank water-closet was rescued by the Boones from a "restoration" in Newport, Rhode Island. All the fixtures occupy the original locations. The old shower fittings and a towel bar were obtained at a flea market and replated in nickel. New tongue-and-groove oak flooring was installed, and both the floor and the wainscot were varnished with polyurethane, which is unfortunate as this is difficult to repair.[85]

The Boones are very pleased with the bathroom and have had no problems with it. This is inspiring considering the elapsed time since the restoration. Many of their neighbors have followed suit by restoring their own Victorian bathrooms. While having only one full bath room in a house may seem difficult for many

modern Americans, the Boones believed it was more important to preserve the original character of the house.

V. CONCLUSION

E. Dean Chagan, a Philadelphia architect, claims that, "Bathroom remodeling is one of the strongest trends among homeowners, despite the inevitable disruption it causes...."[86] Obviously, restoring a late nineteenth-century bathroom can be labor intensive, but those who wish to live in an "authentic" Victorian home often with to retain the original character of the entire house. Plumbing was a valuable part of the history of nineteenth-century architecture and should be included as a component of historic preservation. Recreating the past may involve compromises between practicality, convenience, and cost, but these compromises need not destroy the cultural and architectural importance of a structure.

In 1975, Carolyn Flaherty opined that "if some of the elegant, old fixtures were available today as reproductions they would no doubt find a large market."[87] Fortunately historical plumbing products are available, but are not without problems. First, they can be expensive. Second, they are not always authentic replicas. Third, they are offered in limited varieties. Fortunately salvaged and refinished products are available, which are less expensive and clearly more authentic. However, a higher demand might cause a rise in prices.

The abundance of books and journal articles focusing on the restoration of Victorian structures, which not only provide advice for the decoration of the bathroom but illustrate many restoration examples, reveal that the bathroom will no longer be an ignored feature in the restoration of late nineteenth-century private residences. Modern house restorers are recreating the Victorian character of the bathroom--a room decorated and furnished as elaborately as the rest of the home.

CONCLUSIONS AND RECOMMENDATIONS

Many months were spent investigating nineteenth-century sanitary facilities. It is a fascinating subject. Unfortunately much of the information collected, although important, is not included in this report. However, the bibliography can be utilized by others for further research.

The bathrooms and plumbing at The Willows provided an exciting subject, although some intriguing mysteries remain to be solved. Reaching the conclusion that the present appearance of the museum bathroom is generally accurate was comforting, as any changes could disrupt important features, such as the woodwork, and be quite costly.

What was also discovered during the study of late nineteenth-century bathrooms is that most surviving bathroom components, such as the fixtures, fittings, finishes and accessories, date from the early twentieth century, not the nineteenth century. Reproduction plumbing companies may be praised for attempting to provide historic replicas but they cannot always be relied upon for authentic products. Many reproductions that claim to be "Victorian" are actually replicas of twentieth-century fixtures. Also, many nineteenth-century bathroom restorations, such as those printed in The Old-House Journal, fail to return the appearance to before the twentieth century. This is why this research is so important. Understanding and replicating the history of the bathroom should not stop at the turn-of-the-century; it must take into account even earlier installations.

Also discovered is that contemporary literature such as articles containing historical information, bathroom restoration advice, and interior design books, are not always reliable. They should not be overlooked, but must be utilized with

careful scrutiny. The safest way to replicate a nineteenth-century bathroom is to investigate nineteenth-century sources, such as trade catalogs, books by sanitarians, and periodicals related to plumbing and architecture.

ENDNOTES

[1] Nancy Strathearn, curator of The Willows, Morristown, NJ, interview with author, July 1991.

[2] Ibid.

[3] Gail Winkler, "Recommendations for Recreating and Interpreting the Interior of The Willows," 1983.

[4] Gail Winkler, "Recommendations for Recreating and Interpreting the Bathroom at the John Wood Mansion," 1990.

[5] Gervase Wheeler, Rural Homes (New York: 1851), 185-86.

[6] Ibid, 75-76.

[7] Andrew Jackson Downing, Cottage Residences (New York: 1842. Reprint. Watkins Glen, NY: The American Life Foundation, 1967), 5.

[8] Ibid.

[9] Henry W. Cleaveland, William Backus, and Samuel D. Backus, Village and Farm Cottages (New York: 1856), 144.

[10] Gervase Wheeler, 186.

[11] Andrew Jackson Downing, The Architecture of Country Houses (New York: 1850), 272.

[12] Henry Hudson Holly, Country Seats and Modern Dwellings (New York: 1863. Reprint. Watkins Glen, New York: The American Life Foundation, 1977), 145; Cleaveland, Backus and Backus; Samuel Sloan, The Model Architect (Philadelphia: 1852. Reprint. Sloan's Victorian Buildings. New York: Dover Publications, 1980).

[13] Calvert Vaux, Villas and Cottages (New York: 1857. Reprint. New York: Dover Publications, Inc., 1970), 99.

[14] Samuel Stevens Hellyer, The Plumber and Sanitary Houses (London: 1893), 288.

[15] Calvert Vaux, 99.

[16] Gervase Wheeler, 188.

[17] William Paul Gerhard, Hints on the Drainage and Sewerage of Buildings (New York: 1884); James Joseph Lawler, Lawler's American Sanitary Plumbing (New York: 1896), 226.

[18] Cleaveland and Backus, 144.

[19] George E. Woodward and Edward G. Thompson, Woodward's National Architect (New York: 1869. Reprint. A Victorian Housebuilder's Guide. New York: Dover Publications, 1988), #10. Also see Harry M. Wright, "Specifications for the Finish and Appointments of a Bathroom," Carpentry and Building 5(Jan 1883), 7.

[20] Archibald M. Maddock, Jr., The Polished Earth (Trenton, NJ: The Trenton Potteries Co., 1962), 219.

[21] William Eassie, Sanitary Arrangements for Dwellings (London: 1874), 64.

[22] Palliser, Palliser and Company, Palliser's New Cottage Homes and Details (New York: 1887. Reprint. New York: DaCapo Press, 1975), specifications.

[23] Maria Parloa, "Everything About the House," Ladies Home Journal 9(Dec 1891), 29; James Joseph Lawler, .

[24] William Paul Gerhard, Sanitary Engineering of Buildings. Vol. 1. (New York: 1889), 276.

[25] Nancy Strathearn, interview with author, July 1991.

26 Ibid.

27 Archibald M. Maddock, Jr., 216.

28 "Cisterns," The Old-House Journal 11(Nov 1983), 208.

29 Nancy Strathearn, interview with author, July 1991.

30 Constance M. Greiff, John Notman, Architect (Philadelpha: The Athenaeum of Philadelphia, 1979), 155.

31 Gervase Wheeler, 186.

32 Gervase Wheeler, Homes for the People (New York: 1855), 139.

33 John Claudius Loudon, Cottage, Farm and Villa Architecture and Furniture (London: 1833. Reprint. Furniture for the Victorian Home. Watkins Glen, NY: The American Life Foundation, 1978), 133.

34 "The Sanitation of Dwellings in England," Architectural Record 8(Apr-June 1899), 413.

35 Samuel Sloan, 15.

36 James Lawler, 107-14. The Fosters may even have survived lead-poisoned water caused by a dry cistern. Charles Foster often remarked in his journal how the cistern was dry as a result of a lack of rain, and that water had to be hauled to the cistern. Whether he is referring to the attic cistern or the underground cistern is unknown.

37 William Eassie, 174-75.

38 Archibald M. Maddock, Jr., 155.

39 Nancy Strathearn, interview with author, July 1991.

40 Gervase Wheeler, Rural Homes,

[41] May N. Stone, "The Plumbing Paradox," Winterthur Portfolio 14(Apr 1979), 304.

[42] Gail Winkler, "Recommendations for Recreating and Interpreting the Bathroom at the John Wood Mansion," Quincy Historical Society, 14.

[43] Maria Parloa, 29.

[44] J.C. Loudon, 133.

[45] Samuel Stevens Hellyer, 293.

[46] Thomas Ustick Walter Archives.

[47] Joseph D. Galloway, Gasfitters' and Plumbers' Companion (Philadelphia: 1875), 65.

[48] Also, the circular shape of the basin in this lavatory appears to be an earlier phenomena than the oval basins, as no plumbing trade catalogs beyond the 1870s offer the circular type. Both characteristics could also be an indication that the marble lavatory at The Willows was custom made or imported from England.

[49] Gervase Wheeler, Rural Homes, 208.

[50] William Paul Gerhard, Sanitary Engineering of Buildings, 124.

[51] "Modern Plumbing," The American Architect and Building News 4(July 13, 1878), 11.

[52] See David S. Gillespie, "Restoring Marble Sinks," The Old-House Journal 5(July 1977), 83.

[53] Excerpts from Charles Foster's ledger provide more mysterious clues to the sequence of plumbing. In July, 1889, $9.00 was paid to J.L. Mott Iron Works; in December, 1889, $100.00 was paid to J.L. Mott Iron Works; in March, 1890, $150.00 was paid to Kay Brothers Plumbing; and in April, 1893, $25.90 was paid to J.L. Mott Iron Works. As Charles Foster was an avid reader of The Century Illustrated Monthly Magazine, he might have been influenced by advertisements for the J.L. Mott Iron Works that appeared almost every issue throughout the 1890s. However, there are no bathroom fixtures at The Willows that are similar to anything in the 1888 J.L. Mott plumbing catalog, for which, unfortunately, no price lists have been located.

[54] Stephen Del Sordo, "Bathtubs: An Architectural History," The Old-House Journal 18(Sept-Oct 1990), 39.

[55] Ibid, 44.

[56] May N. Stone, "The Plumbing Paradox," Winterthur Portfolio 14(Apr 1979), 283.

[57] Carolyn Flaherty, "Bathrooms in the Old House," The Old-House Journal 3(Dec 1975), 8.

[58] Bekka Lindstrom, "Post-Victorian Interiors: Bathrooms," The Old-House Journal 15(Nov-Dec 1987), 57.

[59] Carolyn Flaherty, 8.

[60] Clem Labine, "Co-Existing With Old Piping," The Old-House Journal 4(Feb 1976), 1.

[61] John Crosby Freeman, " 'Real' Victorian Bathrooms," Victorian Homes (Fall 1990), 84.

[62] Patricia Poore, "Old Bathroom Woes," The Old-House Journal 18(Sept-Oct 1990), 4.

[63] Bekka Lindstrom, 57.

64 J. Randall Cotton and Matt Schultz, "Architectural Salvage to the Rescue," The Old-House Journal 18(Mar-Apr 1990).

65 William Paul Gerhard, Sanitary Engineering of Buildings, 116.

66 Lawrence Wright, Clean and Decent: The Fascinating History of the Bathroom and the Water Closet (New York: Viking Press, 1960. Reprint. Boston: Routledge and Kegan Paul, 1984), 205.

67 Archibald M. Maddock, 237.

68 Gail Caskey Winkler, introduction, The Well-Appointed Bath (Washington, DC: The Preservation Press, 1989).

69 Maggie Brogan, "For the Sake of Convenience," Period Homes (Feb 1988), 29; Lawrence Wright, .

70 Stephen Del Sordo, 40.

71 Ibid, 39.

72 Carolyn Flaherty, 8.

73 Stephen Del Sordo, 44.

74 See David S. Gillespie, 83.

75 Gordon Bock and Jeff Wilkinson, "Stem Faucet Clinic," The Old-House Journal 18(Sept-Oct 1990), 43.

76 J. Randall Cotton, "Sinks," The Old-House Journal 14(July-Aug 1986), 274.

77 Thomas Cowan, Beyond the Bath (Philadelphia: Running Press, 1983),48.

78 Alison Kyle Leopold, Victorian Splendor (New York: Stewart, Tabori and Chang, 1989), 233.

79 James Joseph Lawler, 226; Maria Parloa,29.

80 Matthew Schultz, interview with author, March, 1991.

81 The Schultzes discovered that the Peel-Away product was detrimental to clear varnished wood because it bleached and caused blotches.

82 Paula Williams, telephone interview with author, February, 1991.

83 Deborah Barcan, "A Two-Tub Bathroom," Victorian Homes 9(Fall 1990), 80.

84 Meredith Boone, telephone interview with author, February, 1991; Jeff Wilkinson, "New Bathrooms in Old Houses," The Old-House Journal 18(Sept-Oct 1990), 30.

85 There is also an original water-closet in the space under the rear stairs, an original porcelain lavatory in a washroom under the front stairs (which is cracked, but still in use), and an original bathtub in the cellar originally for the servants.

86 Debra Nussbaum, "Unabashed Baths," The Philadelphia Inquirer Magazine: At Home (Sept 29, 1991): 26.

87 Carolyn Flaherty, 9.

ILLUSTRATIONS

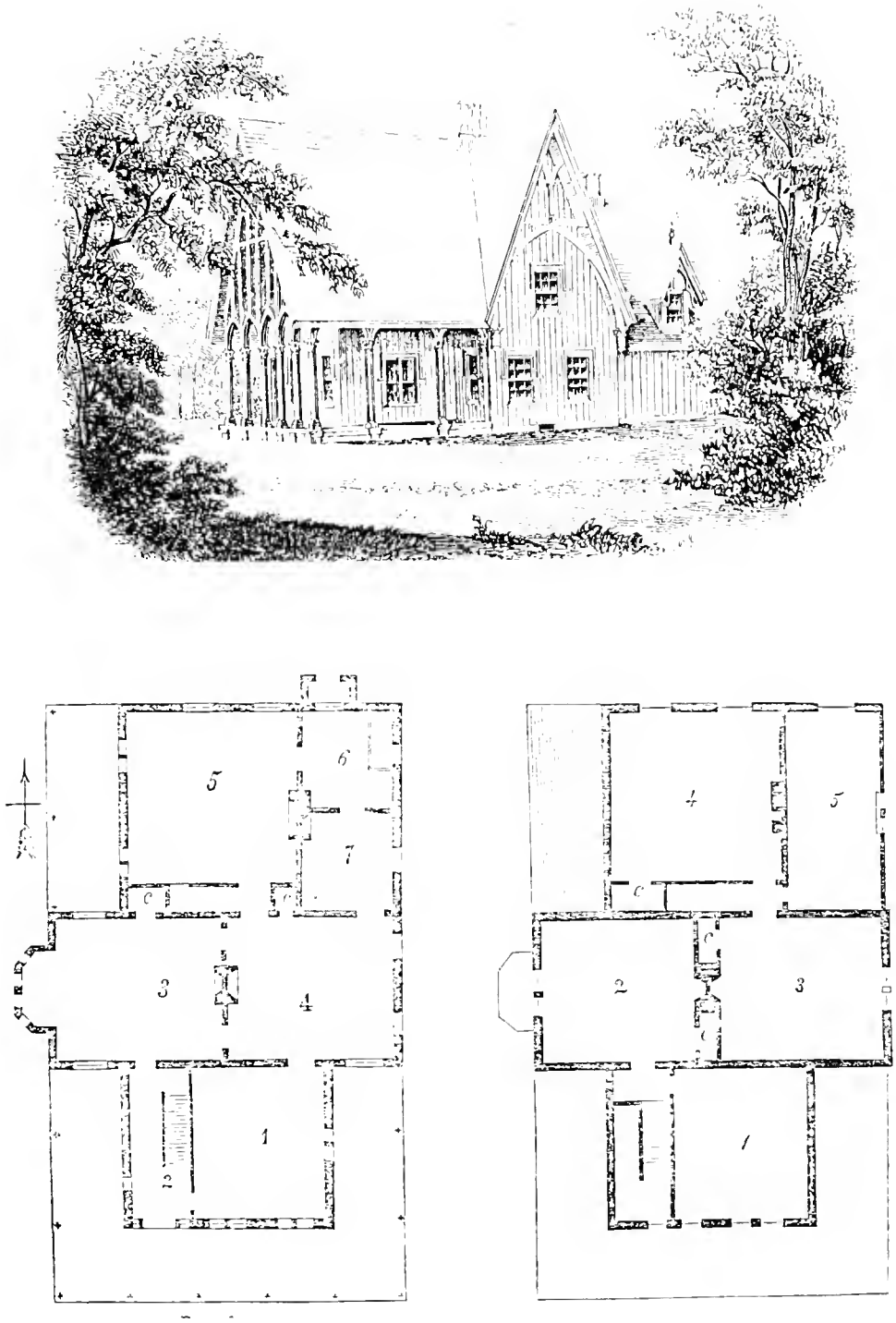
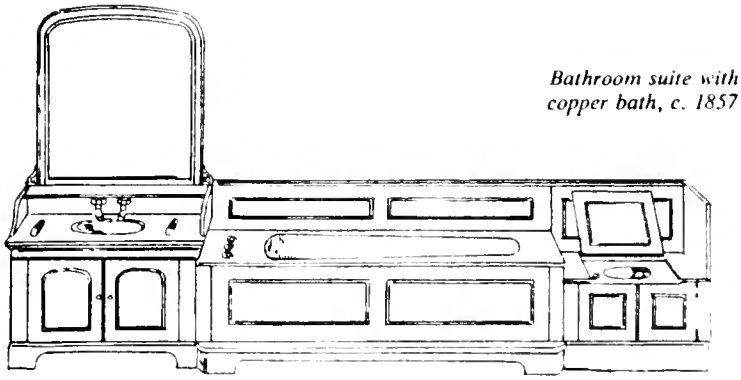


Figure 1-House design adapted for The Willows from Gervase Wheeler's Rural Homes (1851)

Figure 2-The Willows--post-restoration



Bathroom suite with copper bath, c. 1857

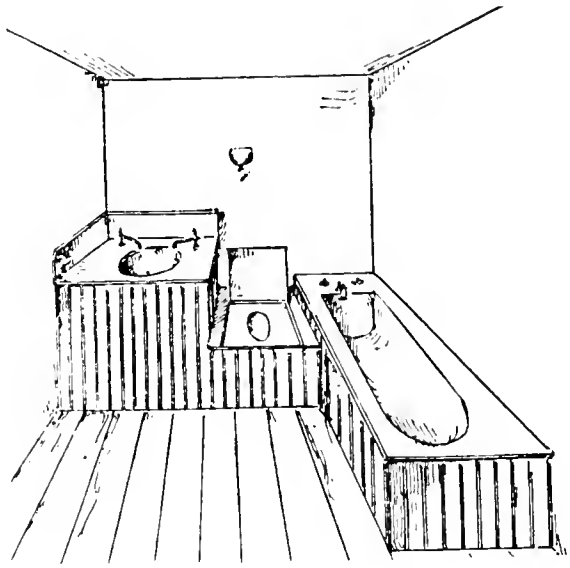
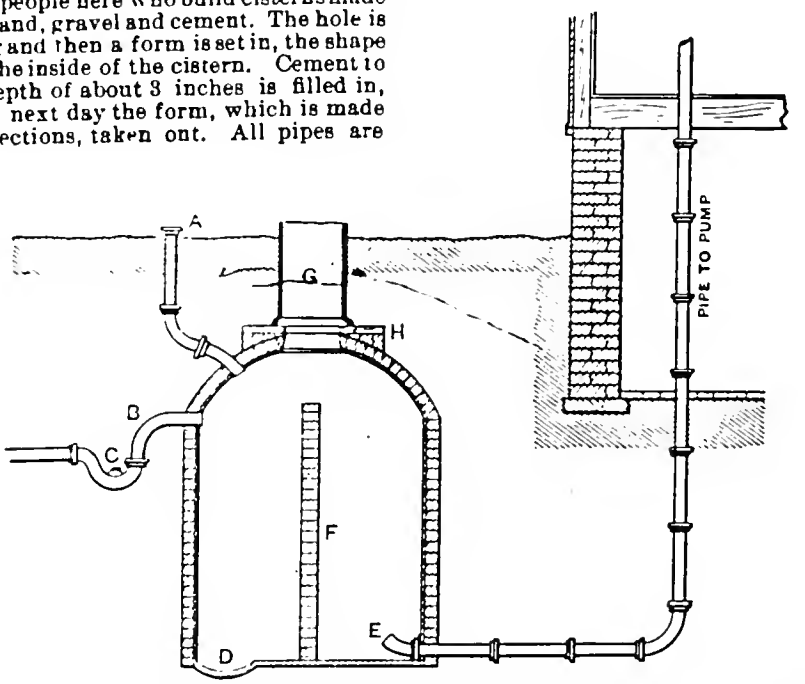


Figure 3-Bathroom suites encased in wood illustrated in Lawrence Wright's Clean and Decent: The Fascinating History of the Bathroom and the Water Closet (1960) and James Joseph Lawler's Lawler's American Sanitary Plumbing (1896)

grade down to this point in order to make easy work of cleaning the cistern. E represents a 3-inch sewer pipe, turned up at the end to prevent the entrance of any sediment. It is cemented into the bottom of the cistern, carried through the wall into the cellar and up to the under side of the floor. All joints are thoroughly cemented. F represents the filter partition, made of sandstone, and is 5 inches thick. It should be built slightly on a curve, bulging toward D. The mouth of the cistern G, 20 inches in the clear, is made of sewer pipe and is 30 inches high. H is a flagstone, 4 x 4 feet in size and 3 inches thick, with an opening the size of the sewer pipe. It will be observed that the top of the cistern is 2 feet below grade, and the sewer pipe projects far enough above the grade to prevent any slush or dirt getting in at the top. It is fitted with a neat cover, which should be ventilated by means of small holes, but not of sufficient size to allow toads to enter. This plan admits of using a straight galvanized iron pipe on the pump, thus doing away with all lead pipes. The cistern being set well in the ground keeps the water cool in summer. The filtering partition F is sometimes built of red brick, but I think coarse sandstone better. There are people here who build cisterns made of sand, gravel and cement. The hole is dug and then a form is set in, the shape of the inside of the cistern. Cement to a depth of about 3 inches is filled in, and next day the form, which is made in sections, taken out. All pipes are



Sectional View of Jug Shaped Cistern Accompanying Letter of "M. L." of Warren, Ohio.

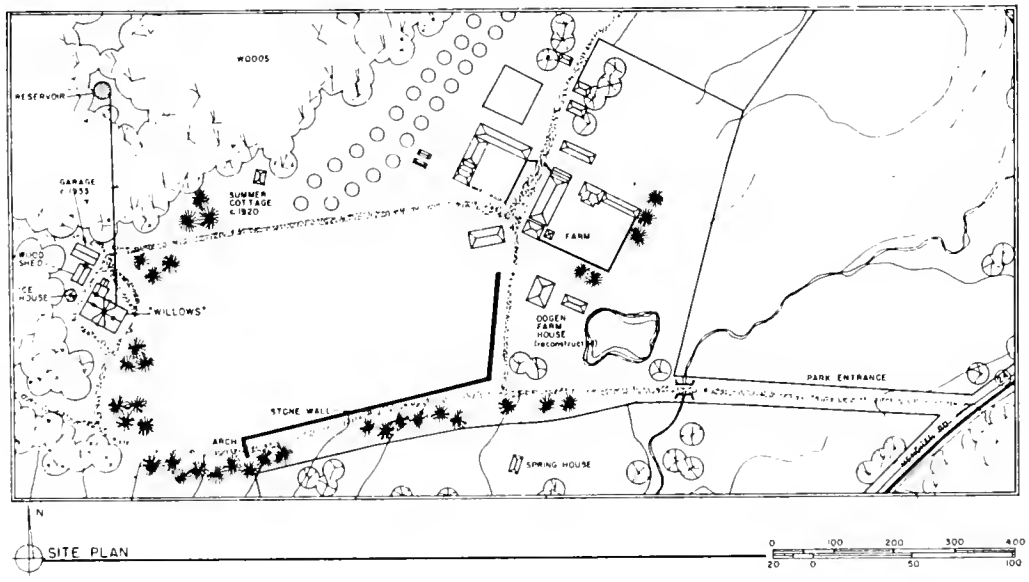
Jug Shaped Cistern.

From M. L., *Warren, Ohio.*—In the July number of the paper I noticed a request from "A. V. H.," Hillsboro, N. D., for the plan of a jug shaped cistern. I inclose a sketch of a cistern as I understand his requirements. It is built of brick and cemented, and will hold about 40 barrels. Referring to the sketch, A represents an inlet of 3-inch pipe, B an overflow of 3-inch

set and the inside given one coat of cement, first covering tight. In a day or two the cover may be opened a little to dry slowly. The water can be let in after a lapse of about three weeks. The cost is about $1 a barrel.

I will describe it as briefly as possible. I rip a 2-inch board into two pieces, each 3½ feet long. These are for the sides, designated in the sketch as A B and A C. I take another piece 18 inches long, represented by B C, for the end. I then take two pieces, one of which I nail in 11 inches from B C and parallel with it. The other piece I hinge to the frame with a 2 x 1¼ inch hinge as shown at D. At the other end of the piece I use a small thumb screw or clamp, E, which holds the tool being ground in place between the two

Figure 4-Underground cistern similar to the one at The Willows



"THE WILLOWS"

at

Fosterfields County Park

Morris Township, New Jersey

MEASURED DRAWINGS

THIS PROJECT WAS INITIATED AND FINANCED BY THE MORRIS COUNTY PARK COMMISSION, MORRISTOWN, NEW JERSEY, AS PART OF THE COMMISSION'S INTENT TO RESTORE THE "WILLOWS" TO ITS c1880-1900 APPEARANCE. BASIC DRAWINGS WERE MEASURED AND DRAWN UNDER CONTRACT TO ROBERT L. DESILETS, AIA, ARCHITECT, ARDMORE, PA, JANUARY TO MAY 1985 BY ROBERT L. DESILETS, HISTORICAL ARCHITECT AND LINDA RICHISSIN WOLBERS, ASSISTANT HISTORICAL ARCHITECT. THAT CONTRACT ALSO INCLUDED RECTIFIED PHOTOGRAPHS OF THE SITE AND BUILDING EXTERIOR AND INTERIOR BY GEORGE EISENMAN, JAMES L. DILLON AND COMPANY, PHILADELPHIA, PA. THESE DOCUMENTS WERE APPENDED BEYOND BASIC FLOOR PLANS AS RESTORATION PROGRESSED, MAY 1985 - JUNE 1991.

THIS RARE FRAME STRUCTURE IS THE SINGLE UNALTERED EXAMPLE OF A PARTICULARLY INFLUENTIAL GERVASE WHEELER DESIGN KNOWN TO HAVE SURVIVED (GUTER 1983). ERECTED IN 1854 UNDER THE DIRECTION OF ITS ORIGINAL OWNER, GENERAL JOSEPH WARREN REVERE (GRANDSON OF PATRIOT PAUL REVERE, WHO ALSO PROBABLY PAINTED THE EXTERIOR AND INTERIOR), THE MANSION OVERLOOKED AN 88 ACRE FARM ORIGINALLY SETTLED BY JAMES OOGEN IN THE 18TH CENTURY. OOGEN'S HOUSE REPORTEDLY SERVED AS HENRY KNOX HEADQUARTERS OF THE AMERICAN REVOLUTIONARY ARMY DURING THE WINTER ENCAMPMENT OF 1779. THE MANSION AND FARM WERE PURCHASED BY CHARLES FOSTER IN 1881. FOSTER RAISED HIS ONLY SURVIVING CHILD, CAROLINE ROSE, ON THE PROPERTY. THE FOSTERS IMPROVED THE MANSION WITH MINOR CONVENIENCE CHANGES AND MAINTENANCE (E.G. CENTRAL HEATING, ELECTRIFICATION, ETC.), AND SUCCESSFULLY FARMED THE PROPERTY AS A DAIRY BUSINESS. CAROLINE FOSTER CONTINUED TO LIVE AND WORK ON THE PROPERTY UNTIL SHE DIED IN 1979. SHE DONATED THE FARM TO MORRIS COUNTY IN 1972. THE COUNTY MANAGES THE FARM AS A 1880-1900 LIVING HISTORY FARM MUSEUM. THE RESIDENCE IS NOTABLE FOR ITS DISTINCTIVE AMERICAN DESIGN, REMARKABLE INTEGRITY, HIGH QUALITY PANELED AND GOTHIC-STYLES CARVED WOODWORK, AND PAINT FINISHES. THE ORIGINAL EXTERIOR INCLUDES AN EARLY (PRE-PATENT) USE OF OIL-CASEIN PAINT FINISH, AND THE ENTRY AND DINING ROOMS ARE FINISHED WITH ELABORATE TROMPE L'OEIL COVERING THE WALLS AND CEILINGS.

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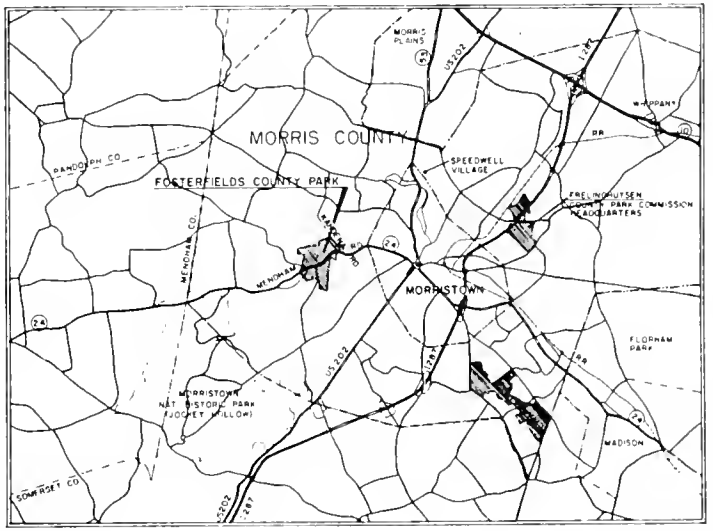


CA. 1854 - 1880 GENERAL REVERE - FOSTER HOUSE, "THE WILLOWS"
MORRIS TOWNSHIP, MORRIS COUNTY, NEW JERSEY

RC

SHEET 1 OF 7

ARCHITECTURAL INVENTORY & DOCUMENTATION
MORRIS COUNTY PARK COMMISSION
MORRISTOWN, NEW JERSEY

Figure 5-Site plan of The Willows by Robert DeSilets, showing location of the reservoir

Figure 6-Reservoir at The Willows (Photograph by author)

Figure 7-Attic cistern at The Willows (Photograph by author)

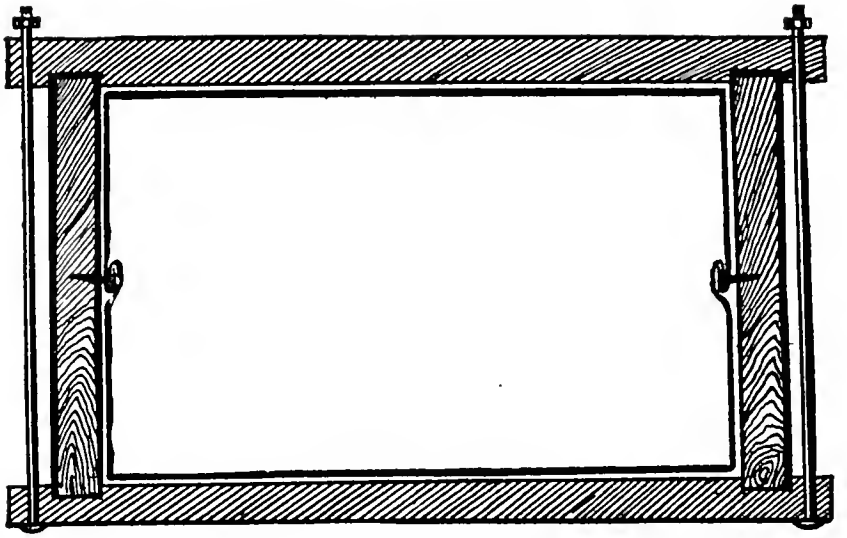


Fig. 35.

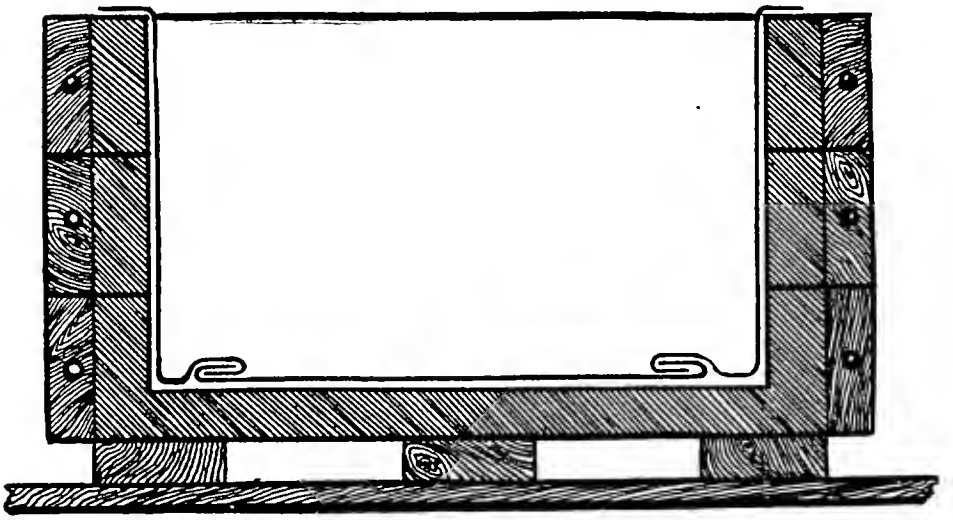


Fig. 36.

Figure 8-Plan and section of a cistern similar to attic cistern at The Willows illustrated in James Joseph Lawler's Lawler's American Sanitary Plumbing (1896)

Figure 9-Existing water closet in room 205 at The Willows (Photograph by author)

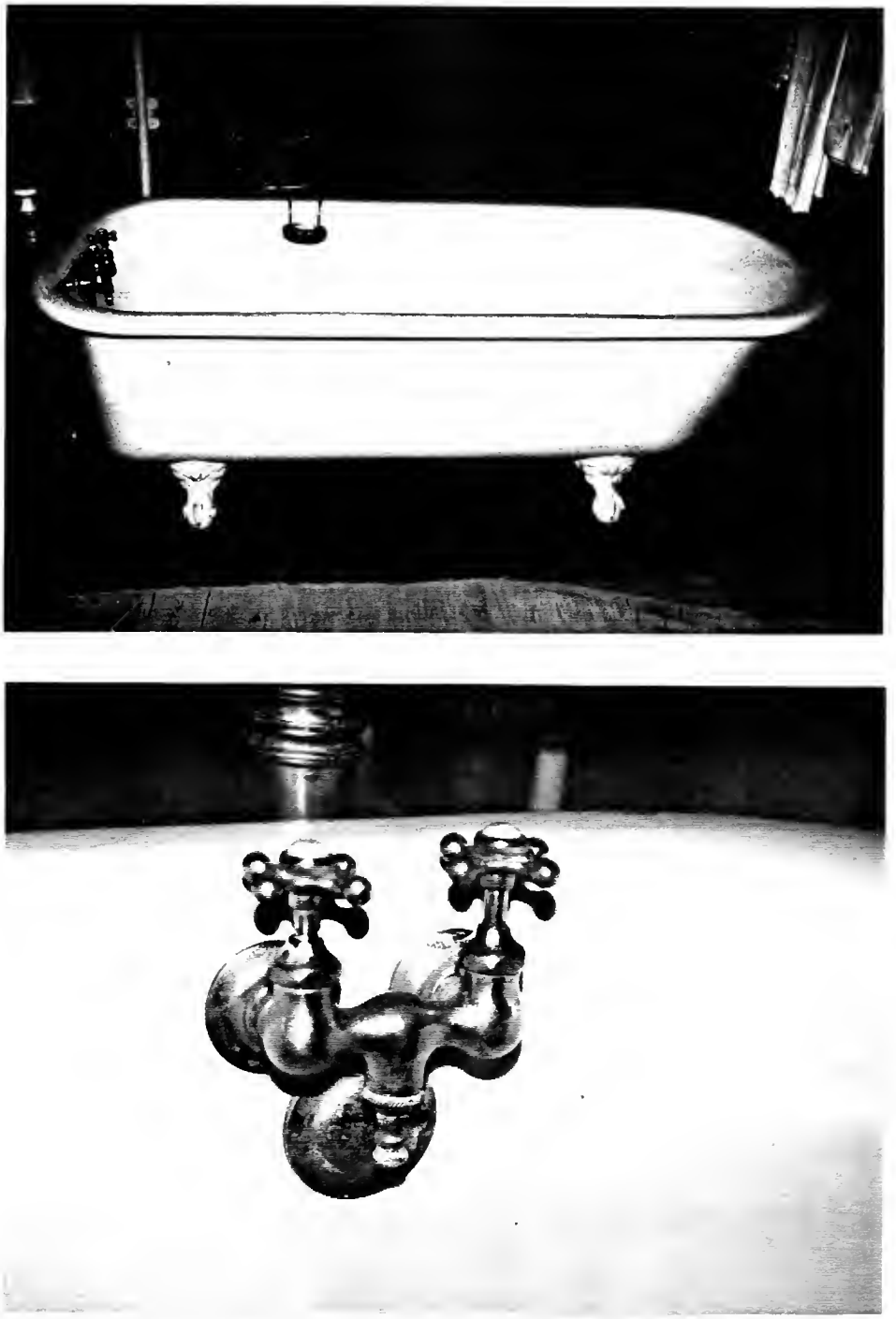


Figure 10-Existing bathtub and fittings in room 205 at The Willows (Photographs by author)

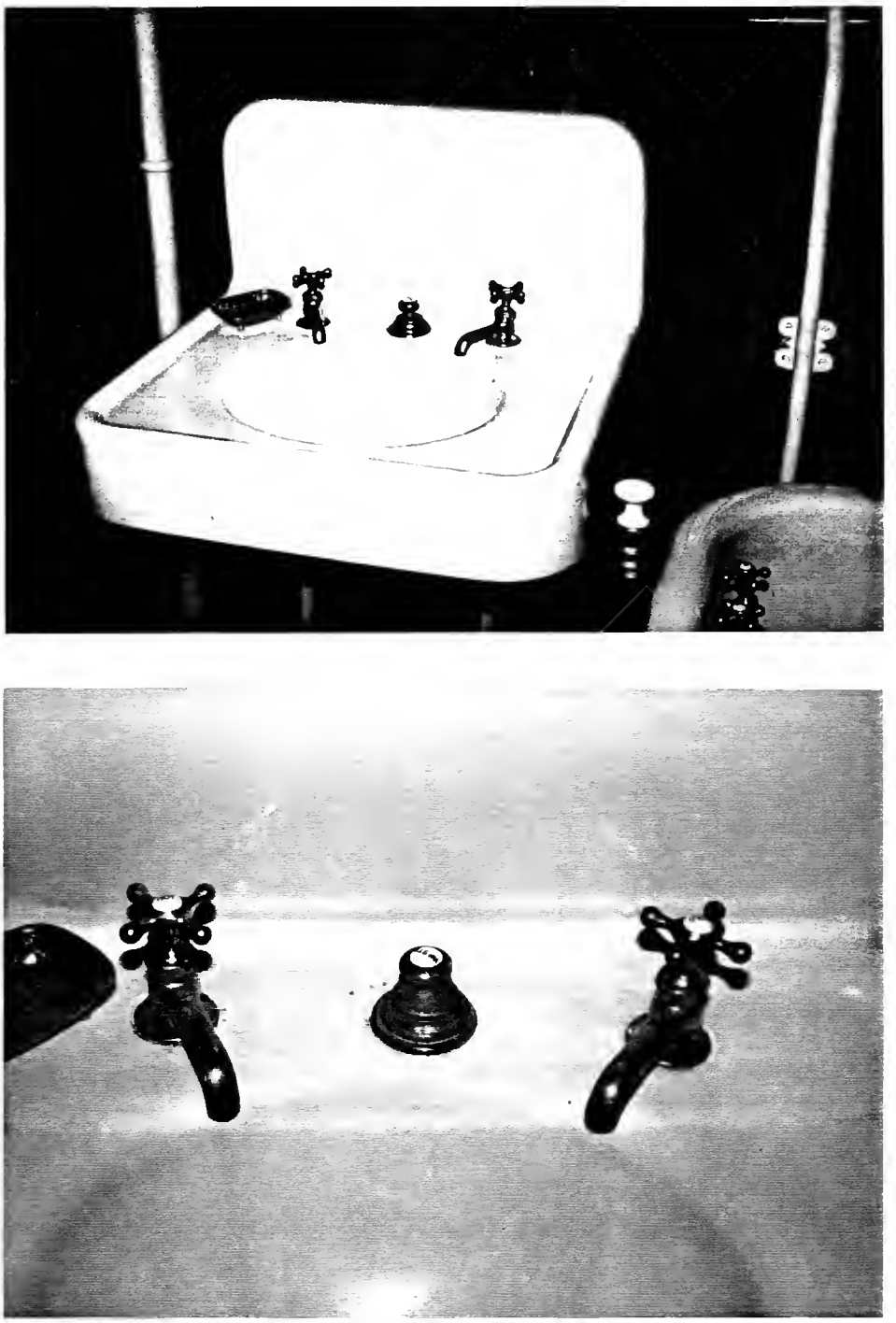


Figure 11-Existing lavatory and fittings in room 205 at The Willows (Photographs by author)

Figure 12-Existing medicine cabinet and towel rack in room 205 at The Willows (photographs by author)

Figure 13-Existing shaving stand and light fixture in room 205 at The Willows (photographs by author)

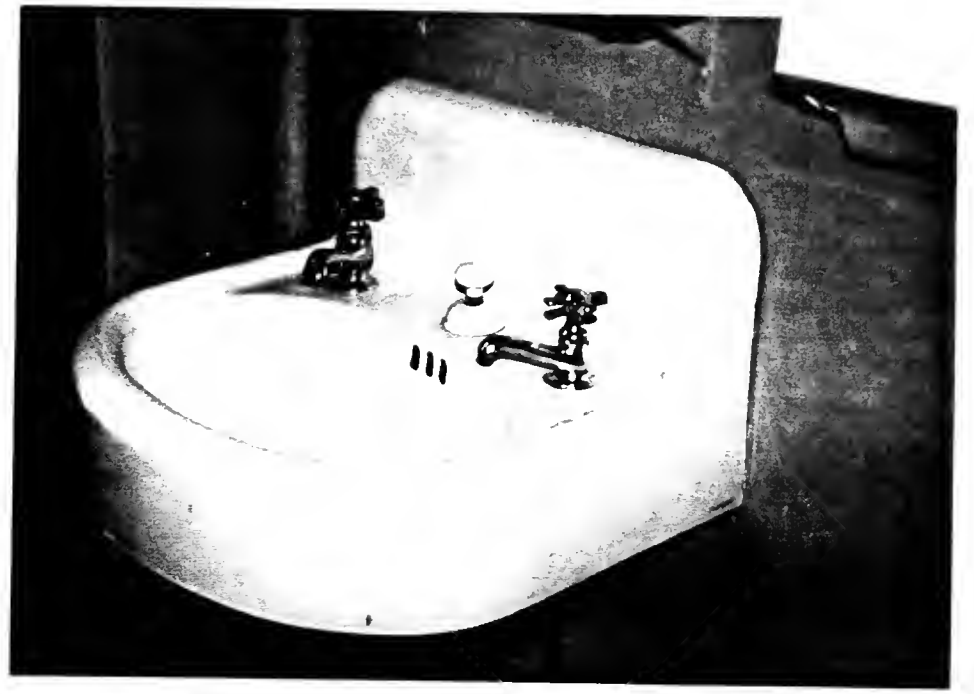


Figure 14-Existing lavatory in room 206 at The Willows (photograph by author)

Figure 15-Existing bathtub fittings in room 206 at The Willows (photograph by author)

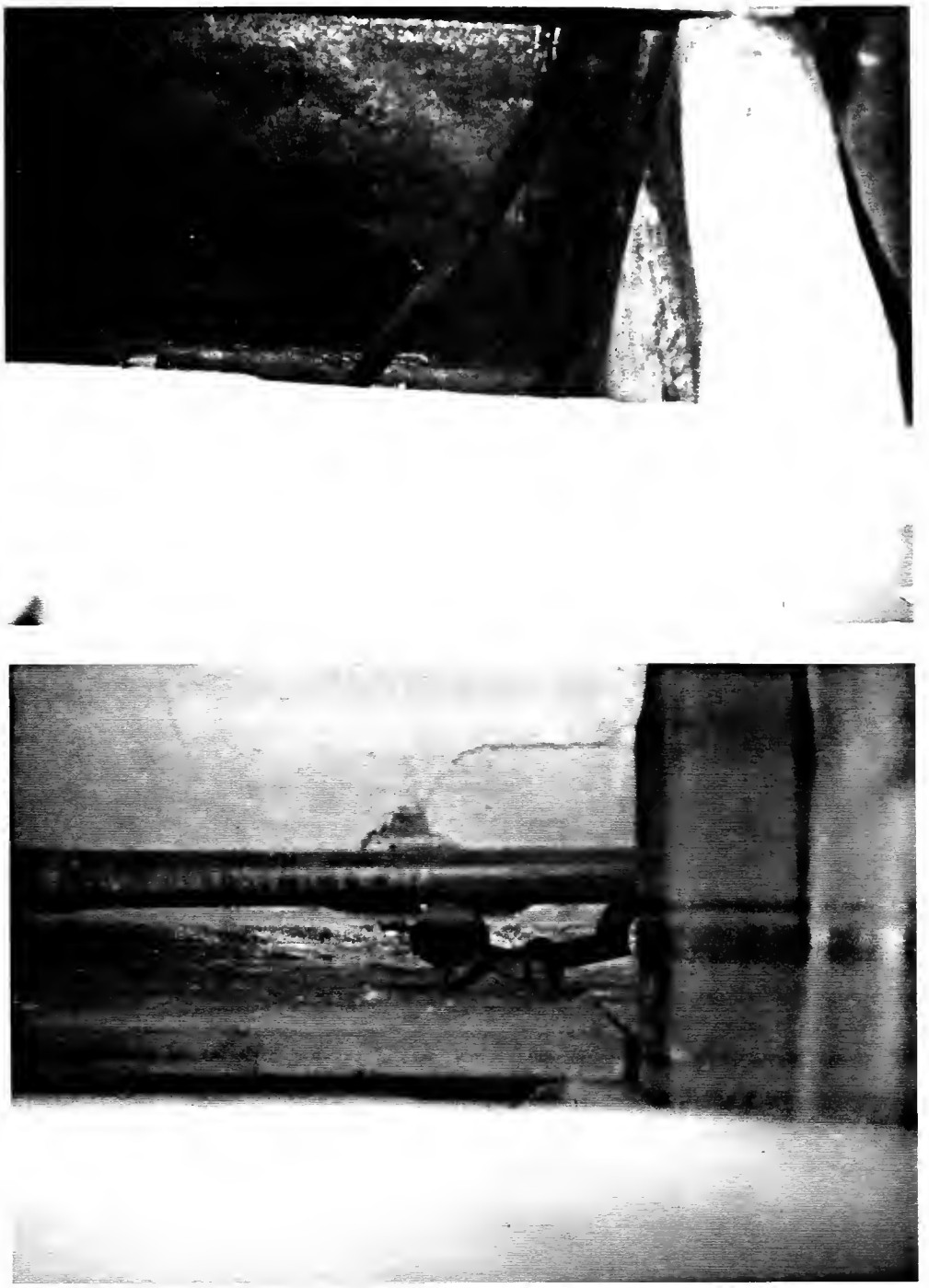


Figure 16-Pipes and mechanisms in attic cistern at The Willows (photographs by author)

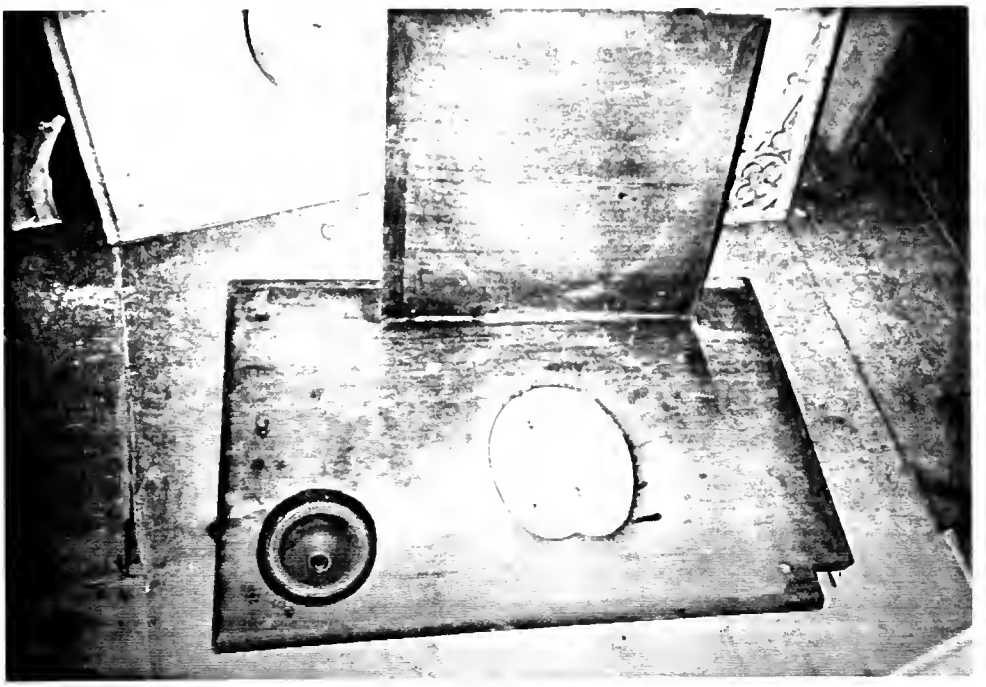


Figure 17-Water closet seat and lid found at the Willows (photograph by author)

We have designated a *water-closet* in this design. A ter-closet does not actually require a space larger than ee by four or five feet, and it may therefore be intro-ced in the first or second story of almost every house, hough we have only shown it in two or three of these signs. If properly constructed, and its accompanying tern kept supplied with water, it will be found entirely e from odors of any kind, and therefore a very great sideratum in every house. The better way is to employ first-rate plumber from the city to fit it up completely hile the house is in progress. In order to explain the inciple of its construction, we extract the following scription of one of a simple and very efficient kind from ie "Encyclopædia of Cottage, Farm, and Villa Architec-ire," p. 18.

"The water-closet may be variously arranged; but as ne of the best and cheapest modes, and one the least kely to go out of order, we give the following: The istern, Fig. 46, *a*, may be at any distance from the seat *b*, rovided it be on a higher level by four or five feet. The asin, *c*, may be an inverted hollow cone, truncated, and oined to a piece of cylindrical tube, inserted in a closed eaden vessel, technically called a smell-trap, *d*. In the ide of *c*, at *e*, is a hole or vertical opening passing obliquely through the sides of the basin, and communi-cating with the cistern *a* by the pipe *f*. The water in the cistern is prevented from running off through this pipe by a nicely fitting valve at *g*. When it is desired to allow the water to rush down into the basin, it is only necessary to pull the string *h;* which, if the cistern be at a distance, may pass over several pulleys, according to the number of angles in its course. In order to insure the descent of a quantity of water to the basin every time it has been used, a cord *i*, may be joined to *h*, and passed over the pulley at *k*, and the end of this cord may be fixed to the upper part of the door of the water-closet at such a distance from the hinge, say a foot, as will suffice to lift up the valve *g;* or the same purpose might be effected by a lever which would be acted upon every time the door was opened. In every case where it is intended that a common or lever valve should be operated on by a door, the latter ought to have a spring-bolt to shut it, lest at any time it should be left open by neglect." There are several late improvements in water-closets now to be had of the best plumbers in New York. The waste-pipe from the water-closet should leave the house by a properly fitted under-ground drain, and should either terminate in a covered drain or sewer, at a considerable distance, or in a well or cistern for liquid manure, the contents of which may be turned to valuable account.

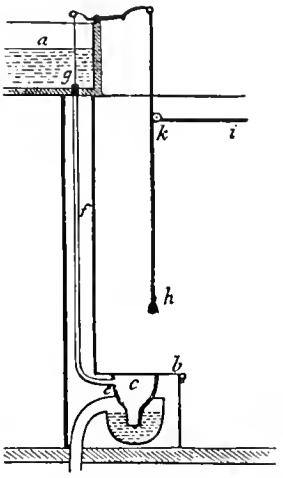


FIG. 46.

Figure 18-Possible prototype of an original water closet at The Willows from Andrew Jackson Downing's Cottage Residences (1842)

"Boston" Pan Closet for Cistern Supply.

WITH VENT COUPLING ON RECEIVER.

PLATE NO. 197.

	Tarred.	Enameled.
Price, Closet with valve, ball lever and cranks	$5 00	$7 25

Add for vent coupling, $1 00

Cistern Valve.

PLATE NO. 198.

Ball Lever.

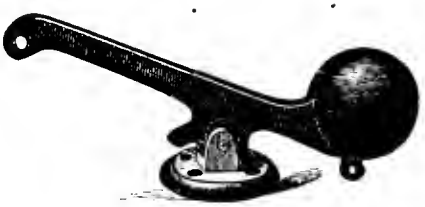


PLATE NO. 199.

Horizontal and Upright Cranks.

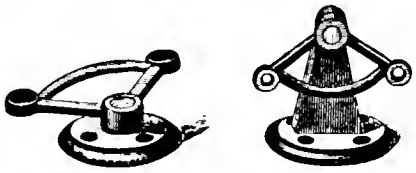


PLATE NO. 200.

Price, Plate No. 198, each	$0 50
" " " 199, "	35
" " " 200, "	15

Figure 19-Pan water closet offered in the 1888 Henry Huber and Company trade catalog

The "American Defiance."

A DIRECT OUTLET VALVE CLOSET.

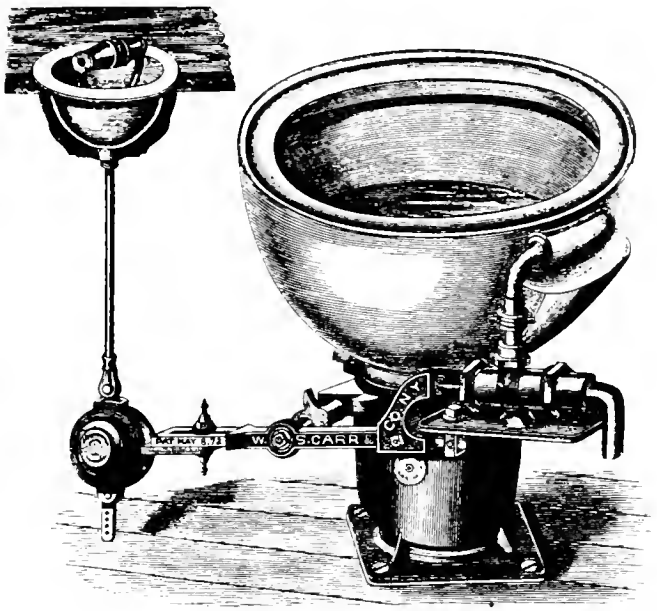


PLATE NO. 190.

Vented Bowl for "American Defiance,"

PLATE NO. 191.

The above is a good Closet for dwellings. We construct it of the best material, and can confidently say that in regard to cleanliness and durability it cannot be excelled by any closet of its kind.

It is suitable for a Ship Closet and for this use we provide it with a full one inch valve to insure a good wash under low-pressure.

Price, Closet for House Use, with $^5/_8$ inch valve	$20 00
" " " Ship " " 1 " "	21 00
Add for Vent on Bowl	50

Figure 20-Valve water closet offered in the 1888 Henry Huber and Company trade catalog

Figure 21-Marks in room 206 at The Willows indicating possible location of original water closet (photograph by author)

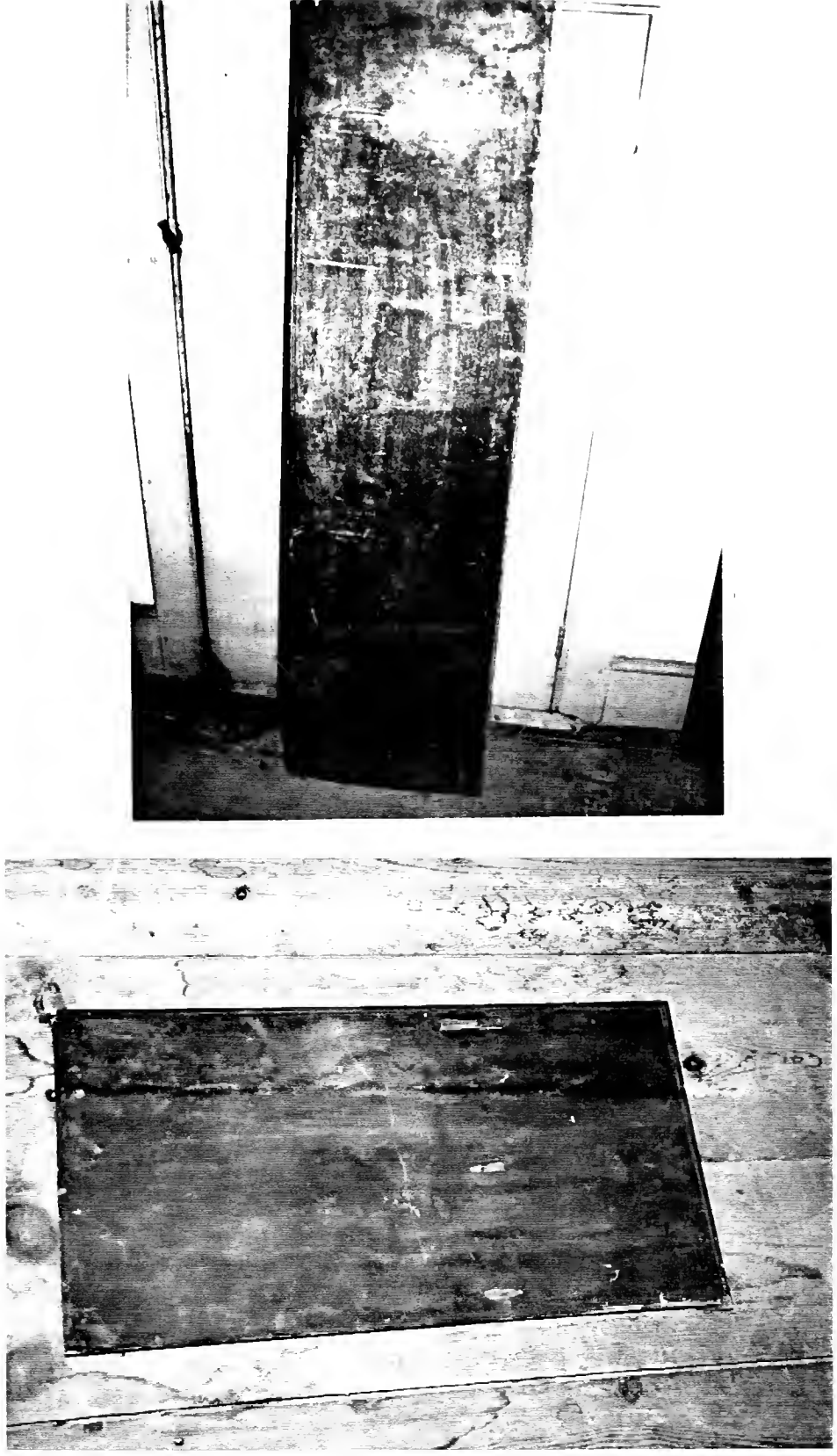


Figure 22-Wood planks stored in attic at The Willows (photograph by author)

Water Closet Case.

IN BLACK WALNUT OR CHERRY, WITH PLAIN OR VENEERED PANELS.

PLATE NO. 250.

Suitable to receive any of our Valve Closets.

	Plain.	Veneered Panels.
Price of Wood Work only.....	$15 00	$22 00

Figure 23-Wood-encased water closet offered in the 1888 Henry Huber trade catalog

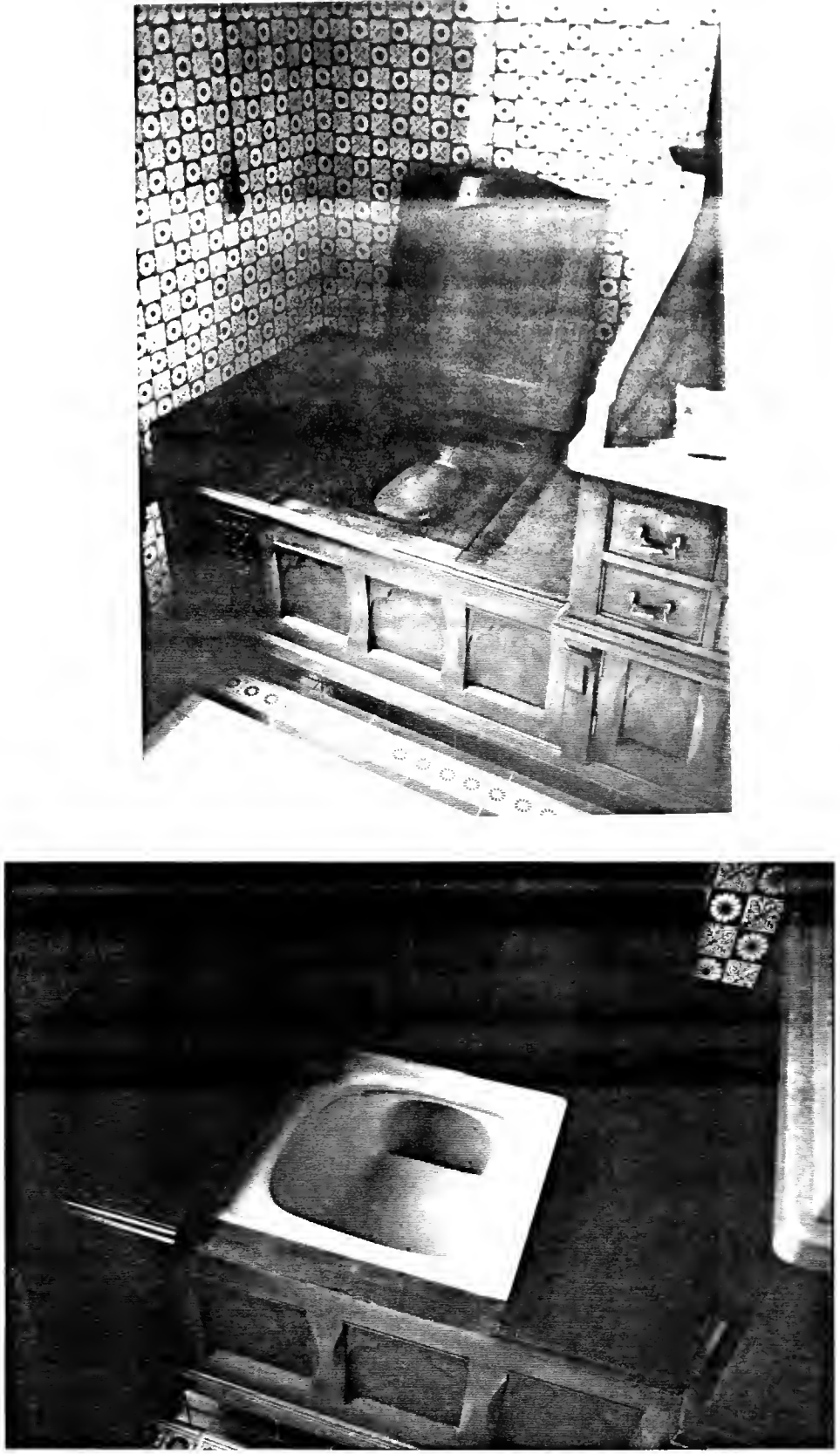


Figure 24-C.1877-1884 water closet in the Asa Packer Mansion

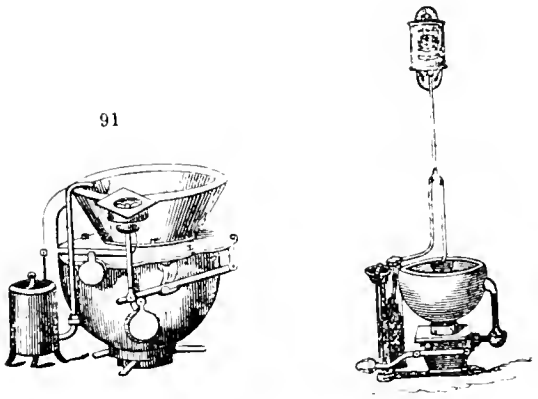


Figure 25-Water closet and disinfectant container illustrated in William Eassie's Sanitary Arrangements for Dwellings (1874)

H. J. & C's Copper Bath Tubs.

NEW YORK PATTERN.

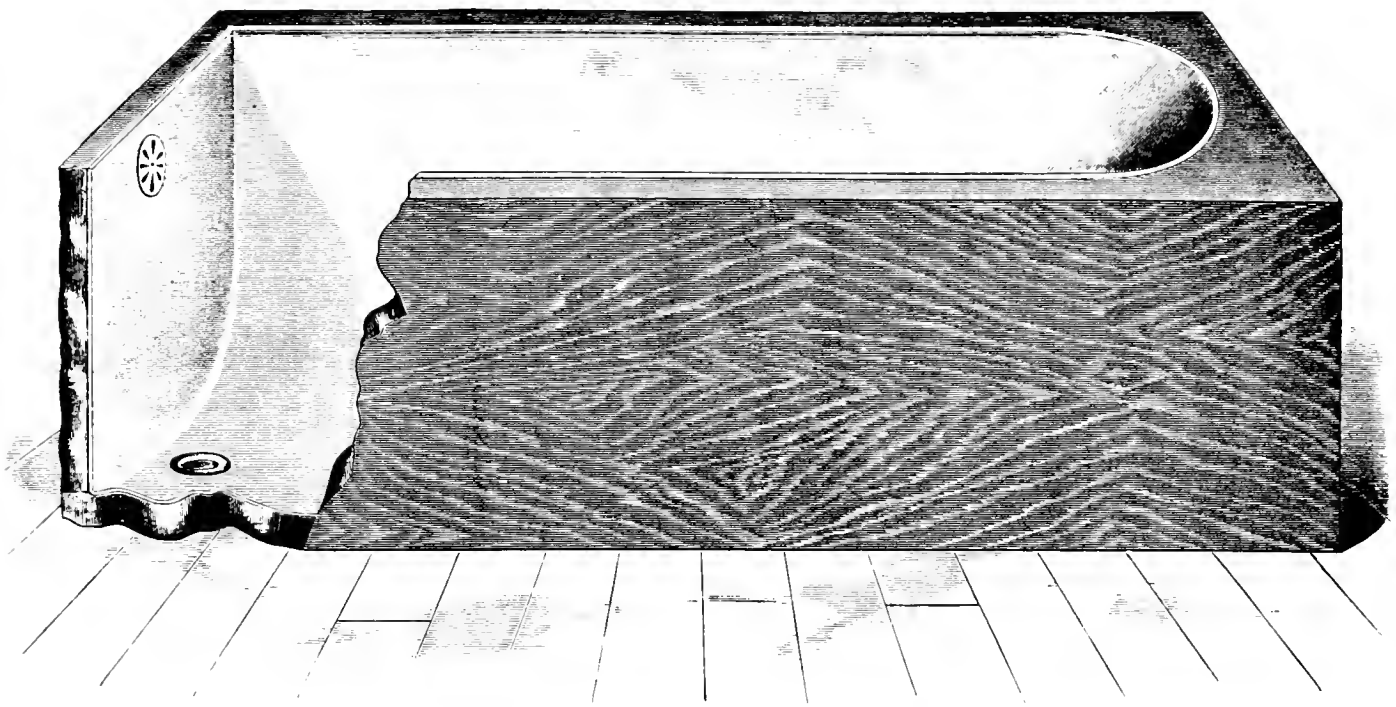


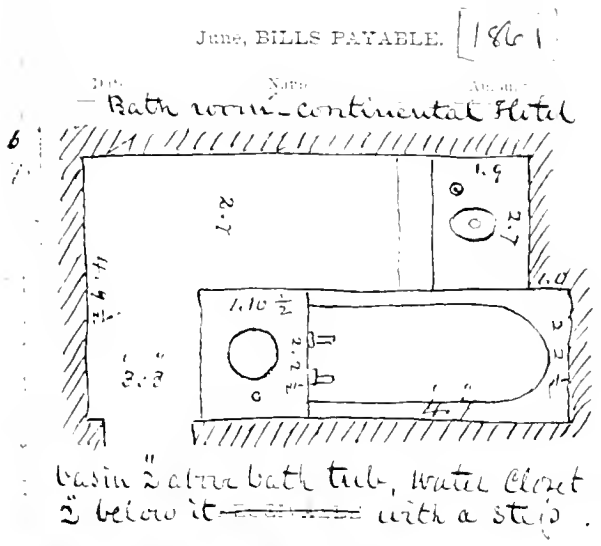
PLATE 37 A.

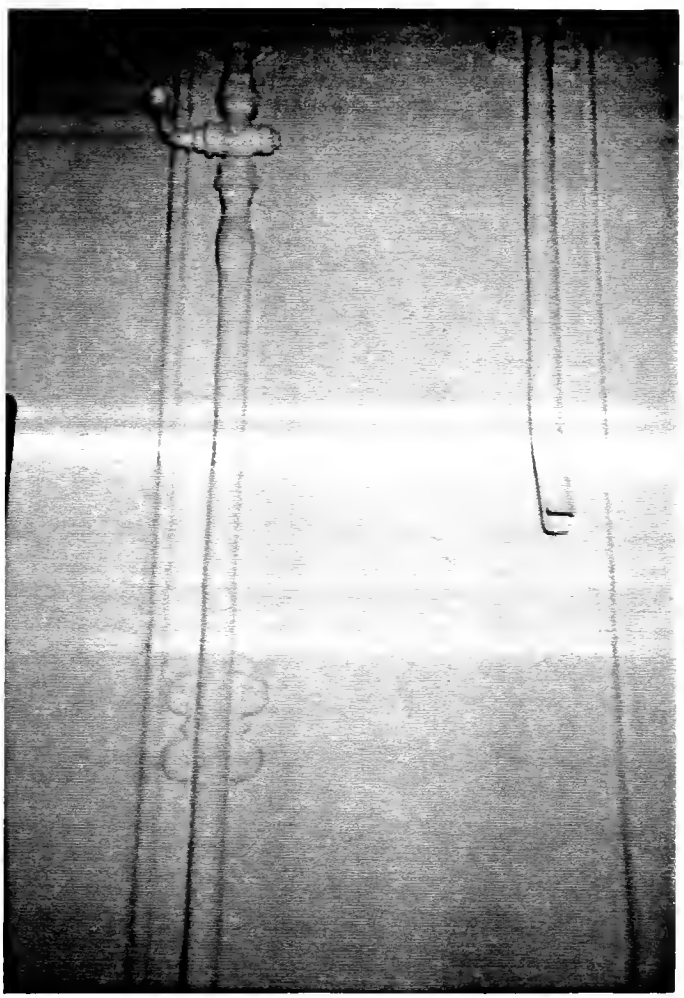
COPPER LINED BATH.

Sizes, 4½, 5, 5½ or 6 feet long; 24 inches wide and 19½ inches deep, outside measure.

Weight of Copper to square foot, ounces,	10	12	14	16	18	20
Price each	$15 00	$16 00	$18 00	$20 00	$22 00	$24 00

Figure 26-Metal-lined wood encased bathtub offered in the 1893 Haines, Jones and Cadbury trade catalog





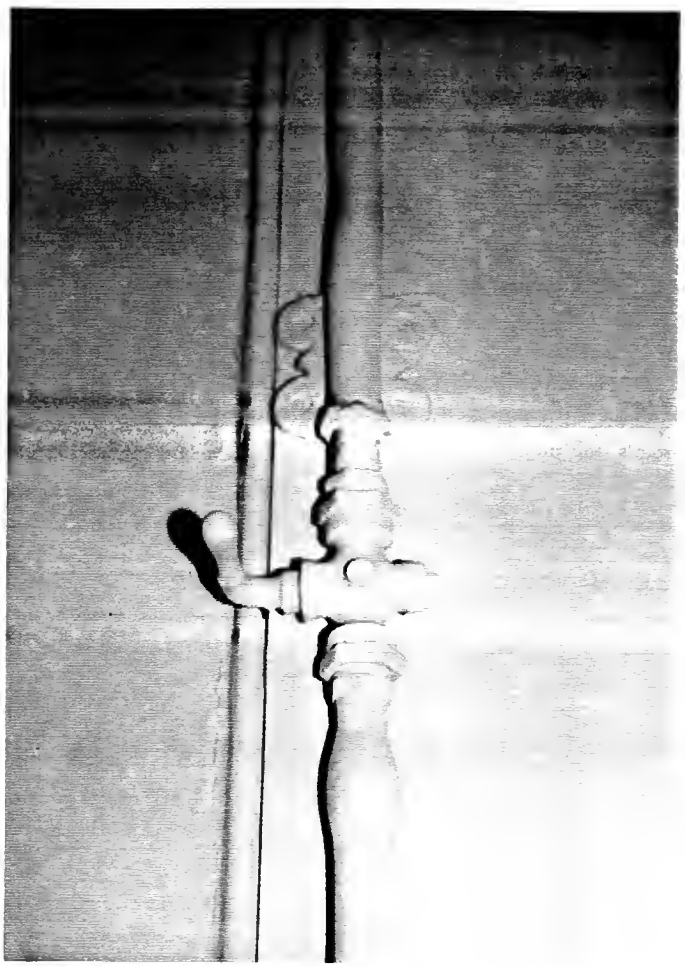


Figure 27-Hotel bathroom drawn by Thomas Ustick Walter

Figure 28-Original lead pipes in room 205 of The Willows

Figure 29-C. 1890's wood-encased bathtub at the Grant Kohrs Ranch (photograph by Nancy Strathearn)

Figure 30-Marble lavatory and basin cock found in the attic of The Willows

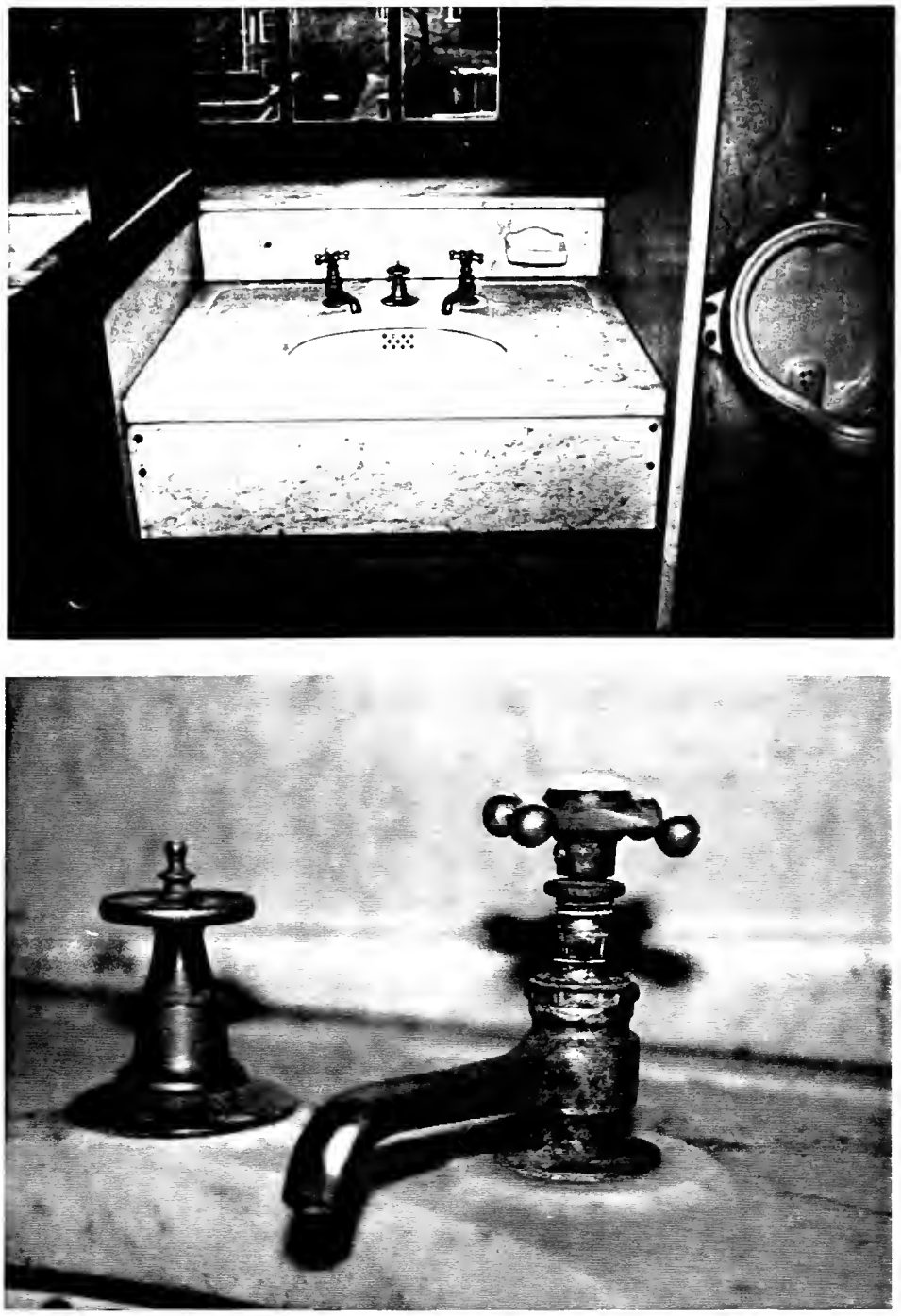


Figure 31-C.1860 lavatory and fittings at Carpenters' Hall (photograph by author)

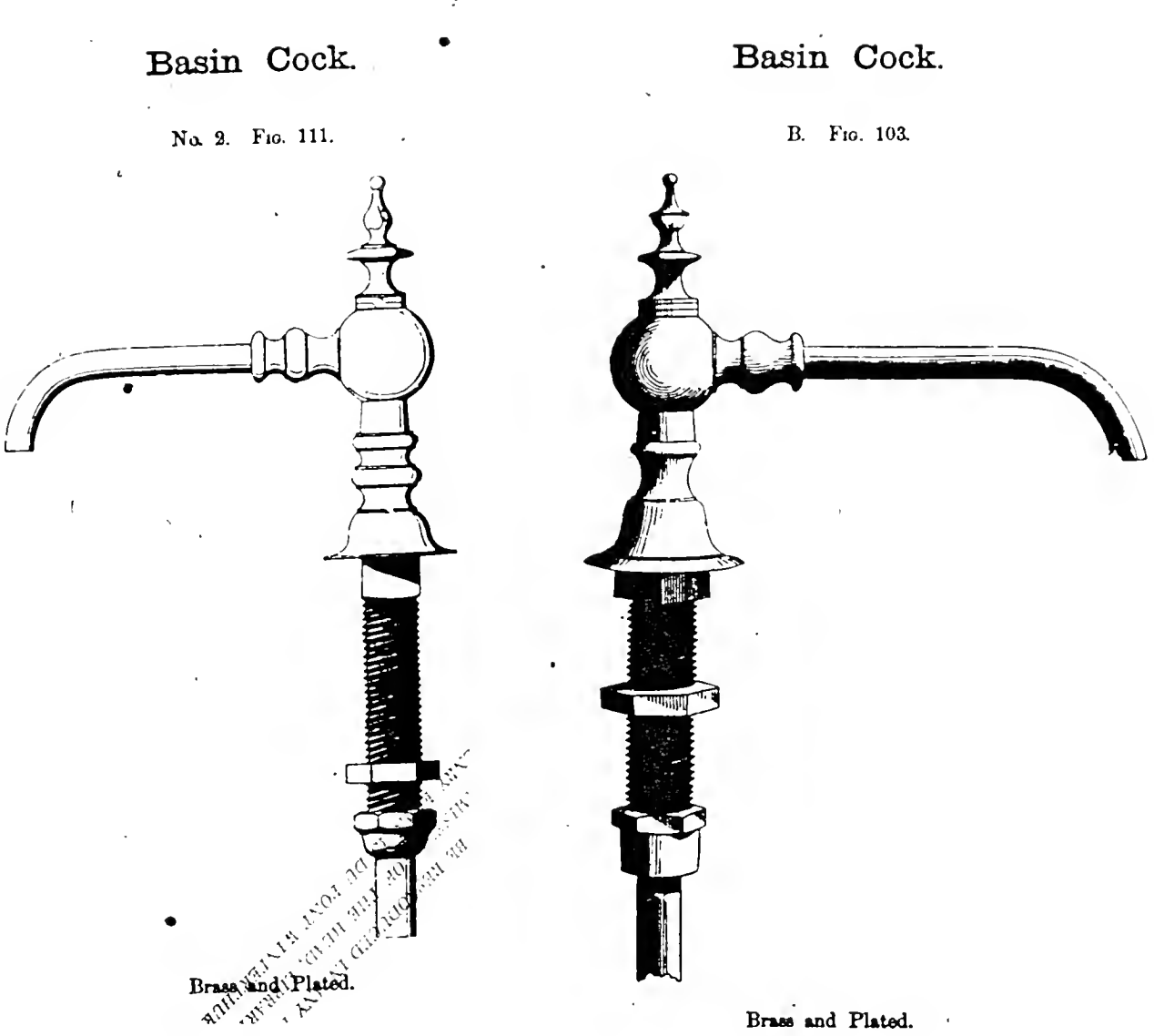


Figure 32-Basin cocks offered in the 1866 Hayden, Gere and Company trade catalog

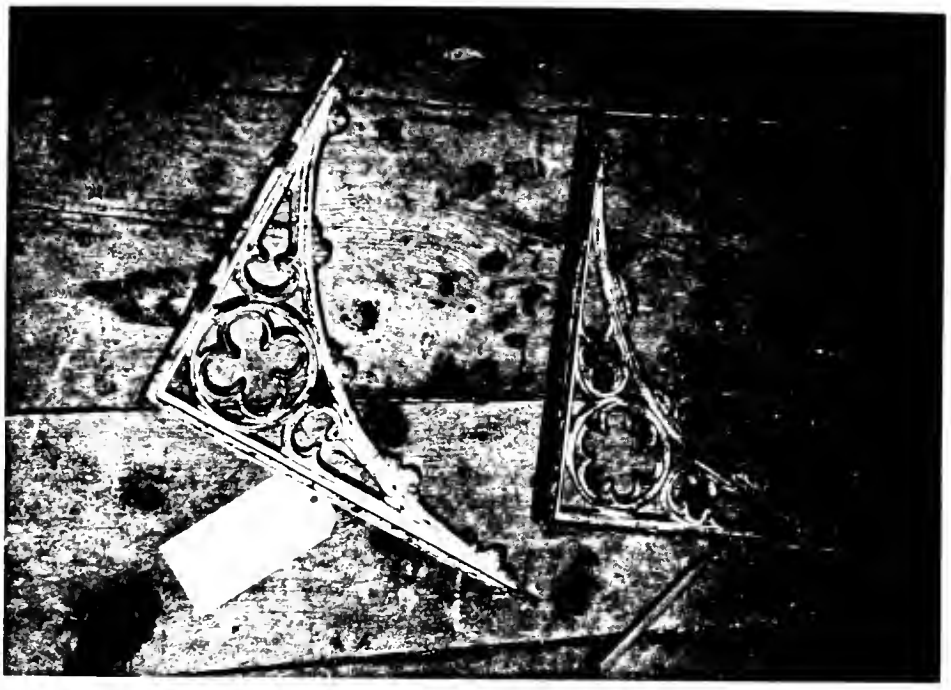


Figure 33-Marble slabs found in the attic of The Willows

Figure 34-Cast-iron brackets found in the attic of The Willows

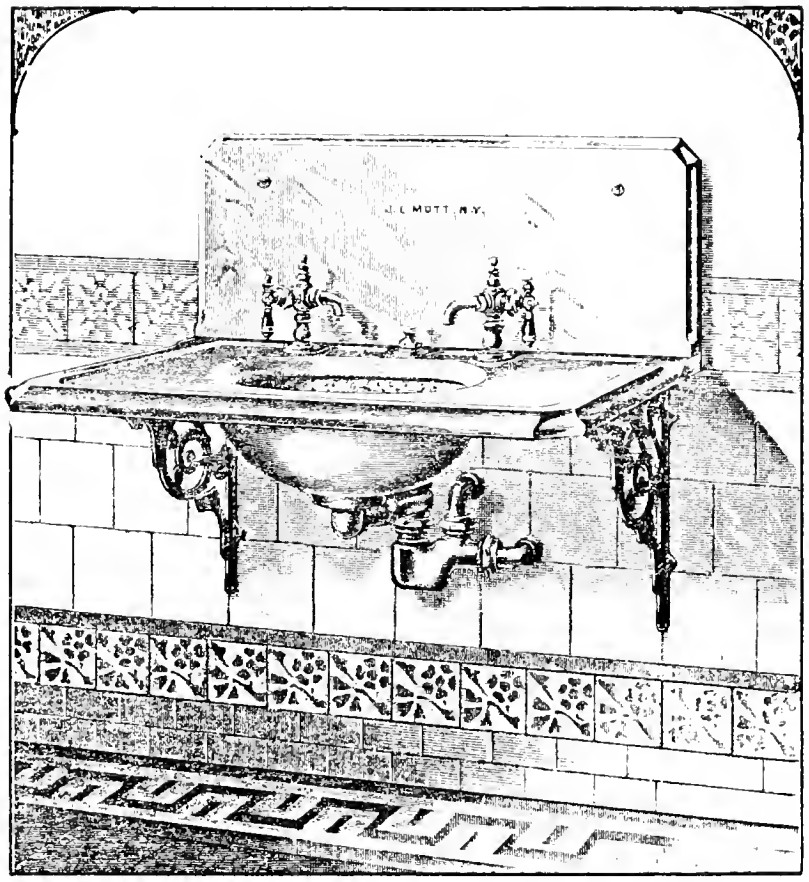


PLATE 410-G.

MOTT'S OPEN LAVATORY,

COMPRISING

Marble Slab and Back with Cast Brass Brackets, Oval Wash Basin with "Unique" Waste and Cast Brass Trap, and Improved Faucets with Ebony Handles. All the Brass Work furnished either Nickel or Silver plated, or Polished.

THE Marble Slab shown is 33 × 22 inches and the Back 12 inches high, but can be furnished any size to order. The Oval Basin is furnished in three sizes; it may be marbleized, ivory-tinted or white, or decorated in any of the designs illustrated on previous pages. The "Unique" Waste is furnished with the Cast Brass Trap as shown, or with Coupling only.

For separate view and description of Basin and Waste, see pages 159, 160 and 161.

If so ordered, Brackets and Faucets as shown by Plate 412-G can be furnished; also Brass Supply and Waste Pipes as shown by Plate 417-G.

Mott's Open Lavatories are designed to meet the prevailing demand for fine plumbing appliances adapted to be fitted up without being encased; they are attractive and artistic in appearance, and fulfil all practical and sanitary requirements.

Figure 35-Marble lavatory offered in the 1888 J.L. Mott Company trade catalog

Figure 36-Marks revealing possible location of previous lavatories in room 205 of The Willows (photograph by author)

Figure 37-Marble lavatory at the Grant Kohrs Ranch (photograph by Nancy Strathearn)

Figure 38-Marble lavatory and tiled wood-encased bathtub at the Asa Packer Mansion (photograph by author)

No. 2 Wash Stand.

IN BLACK WALNUT OR CHERRY, WITH PLAIN OR VENEERED PANELS.

PLATE NO. 246.

For Marble Slab, 30 x 20 inches. Other Sizes made to order.

Figure 39-Marble lavatory offered in the 1888 Henry Huber Company trade catalog

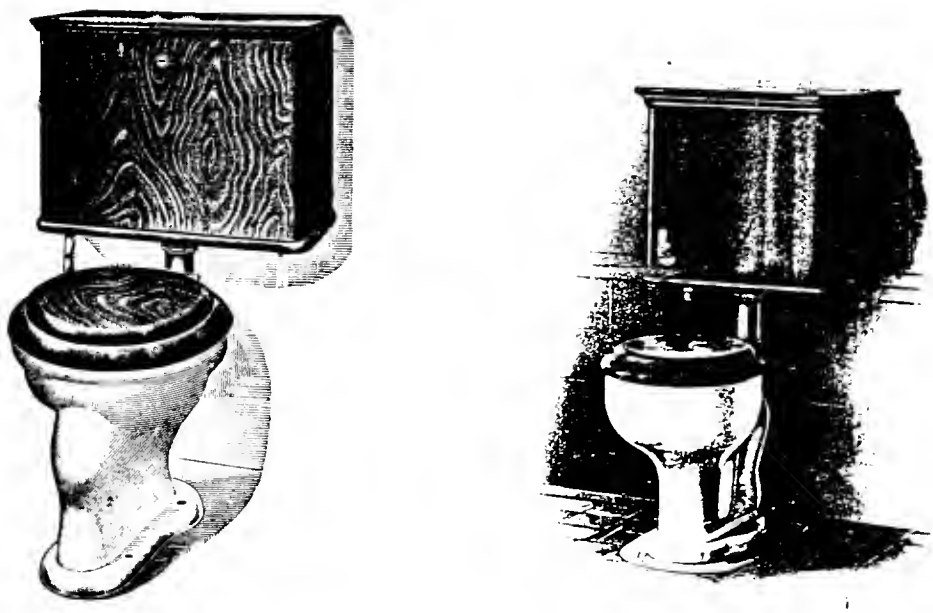
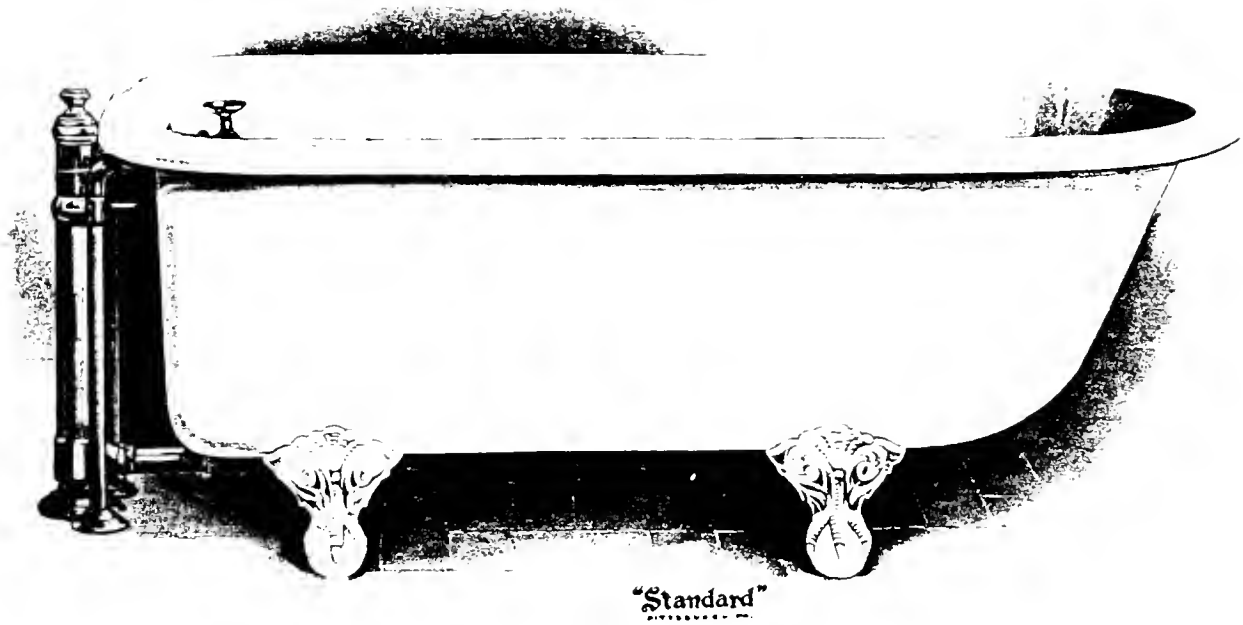


Figure 40-Water closets offered in the 1902 Sears, Roebuck and Company and 1908 J.L. Mott Company trade catalogs



New Favorite—Plate P112

"Standard" Porcelain Enameled Bath, and Nickel-plated No. 4½ Fuller Double Bath Cock, with ½-inch I. P. Size Offset Supply Pipes and Imperial Waste.

DIMENSIONS

Width over rim	30 inches	Height to top of rim	23 inches
Width of roll rim	3 inches	Depth inside	17 inches

Nominal Sizes	4'	4½'	5'	5½'	6'
Plate P112 as described	$36.75 (Macarizing)	$36.75 (Macaronet)	$39.75 (Macaronian)	$43.50 (Macaroon)	$48.00 (Macarrao)
Plate P112A, bath only, drilled for fittings shown	$24.00 (Manchon)	$24.00 (Mancia)	$27.00 (Mancino)	$30.75 (Manciola)	$35.25 (Mancipple)
Length over rim, bath only	4' ½"	4' 6½"	5' ½"	5' 6½"	6' ½"
Approximate weight of bath, crated	300 lbs.	315 lbs.	350 lbs.	385 lbs.	430 lbs.

Figure 41-Bathtub offered in the 1904 Standard Sanitary Manufacturing Company trade catalog

"Standard" Nickel-plated No. 3 Compression Double Bath Cock, with ½-inch I. P. Size Offset Supply Pipes.

Plate P 305 as described.
each . . $5.50
(Mactorum)

If with straight pipes, deduct $0.25
(Mactrace)

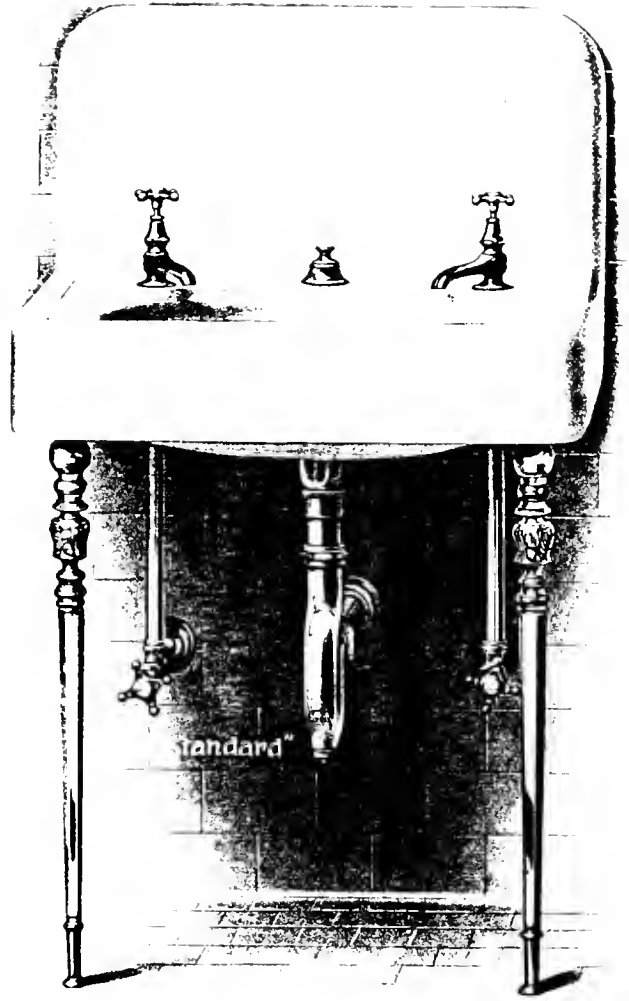
Plate P 454

"Standard" Nickel-plated Brass Towel Bar.

Sizes	20"	24"	30"	36"
Price, ½-in. Solid	$0.65 (Madotheque)	$0.70 (Madracal)	$0.80 (Madracana)	$1.00 (Macronichi)
Price, ¾-in. Tubing	$0.85 (Madmannah)	$0.95 (Madonna	$1.05 (Madornale)	$1.40 (Macrometer)

Figure 42-Bathtub fittings offered in the 1904 Standard Sanitary Manufacturing Company trade catalog

Figure 43-towel bar offered in the 1904 Standard Sanitary Manufacturing Company trade catalog



Odona—Plate P 519 1/2

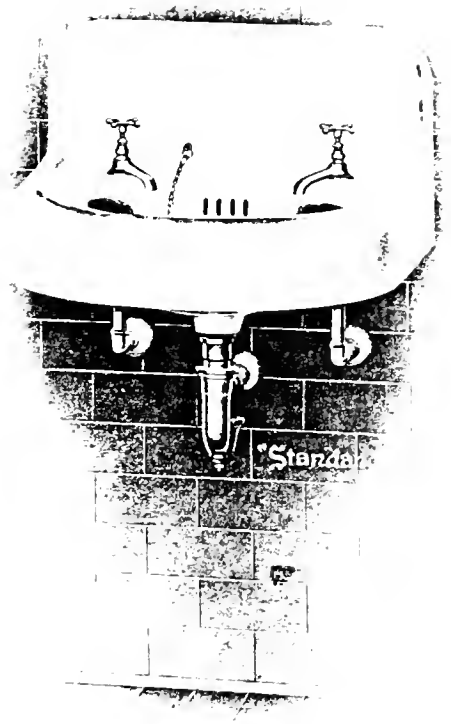
"Standard" Porcelain Enameled "Odona" Design Lavatory, with Slab, "D" Pattern Bowl with rear outlet, Apron and Back all in one piece, with Nickel-plated Brass Legs and Concealed Wall Hanger, Low Pattern Compression Faucets with China Indexes, Imperial Waste with China Index, Supply Pipes to Wall, with Compression Stops with China Indexes and 1 1/2-inch Bag Trap.

DIMENSIONS

Slab, 22 x 27 inches Bowl, 13 x 21 inches Back, 12 inches Apron, 5 inches

Plate P 519 1/2, enameled all over, as described	$47.50
P 519 1/2 A, enameled [illegible]	31.50
Plate P 519 1/2 B, enameled exterior, as described	44.50
Plate P 519 1/2 C, enameled exterior, less all fittings	28.00

Figure 44-Lavatory offered in the 1909 Standard Sanitary Manufacturing Company trade catalog



OTHELLO
PLATE P 4205 E

OTHELLO—Plate P 4205 E

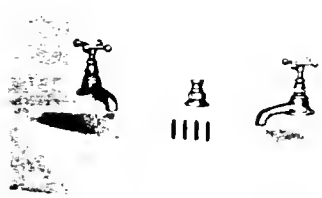
"Standard" Porcelain Enameled OTHELLO Lavatory with Rear Outlet Oval Bowl, supported on Concealed Wall Hanger; fitted with Nickel-plated Waste Plug, Rubber Stopper, Chain and Chain Stay, Nickel-plated No. 1 MIDGET Compression Faucets with Four-ball China Index Handles, Nickel-plated $\frac{3}{8}$-inch Plain Wall Supply Pipes and Nickel-plated $1\frac{1}{4}$-inch No. 1 Adjustable "P" Trap.

OTHELLO—Plate P 4206 E

Same as Plate P 4205 E, except with EMPIRE China Knob Waste, instead of fitting shown.

PRICES

Size	18 x 21"
Plate P 4205 E, as described	$
Plate P 4206 E, as described	
Add for China Index Stops on Supplies	



OTHELLO—Plate P 4206 E

DIMENSIONS

Size	Actual Width	Actual Length	Bowl	Back
18 x 21"	18"	21"	$10\frac{1}{4}$ x $14\frac{1}{2}$"	8"

OTHELLO when furnished with EMPIRE Waste does not have Depressed Soap Dish cast in Slab.

Figure 45-Lavatory offered in the 1919 Standard Sanitary Manufacturing Company trade catalog

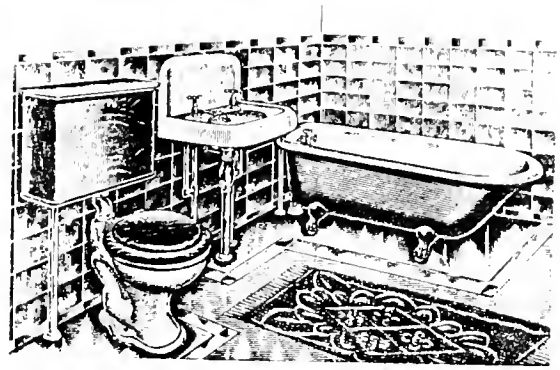
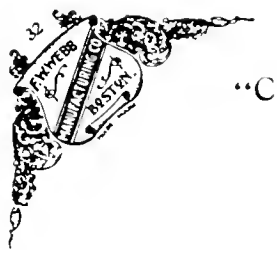


Figure 46-Bathroom design illustrated in the 1902 Sears, Roebuck and Company trade catalog



"CELO" CLOSET COMBINATION

Plate 180-B.

"CELO" PLAIN VITREOUS SYPHONIC WASHDOWN CLOSET with floor screws and nickel-plated washers, piano polish low down beaded tank with special syphon refill valve, bottom supply, Duplex ball cock and float, pull and chain, 2 inch nickel-plated flushing connection to closet, nickel-plated brass supply pipe; Style "C" piano polish seat and cover with nickel-plated attachment to closet

Price as described with woodwork in Light or Golden Oak, Light or Dark Cherry	$25.00
Add if with woodwork in Black Walnut or Mahogany	$5.00
Add if with embossed closet	[illegible]
Add if with nickel-plated wheel handle stop on supply pipe	1.50
Add if with nickel-plated local vent pipe and collar (2 inches)	1.00
Add if with brass floor flange and bolts	1.00

Add for 24 x 30 countersunk Italian or Tennessee marble floor slab $7.50

Combination Plate 180-B roughs in at 18½ inches.

Figure 47-Water closet offered in the 1900 F.W. Webb Company trade catalog

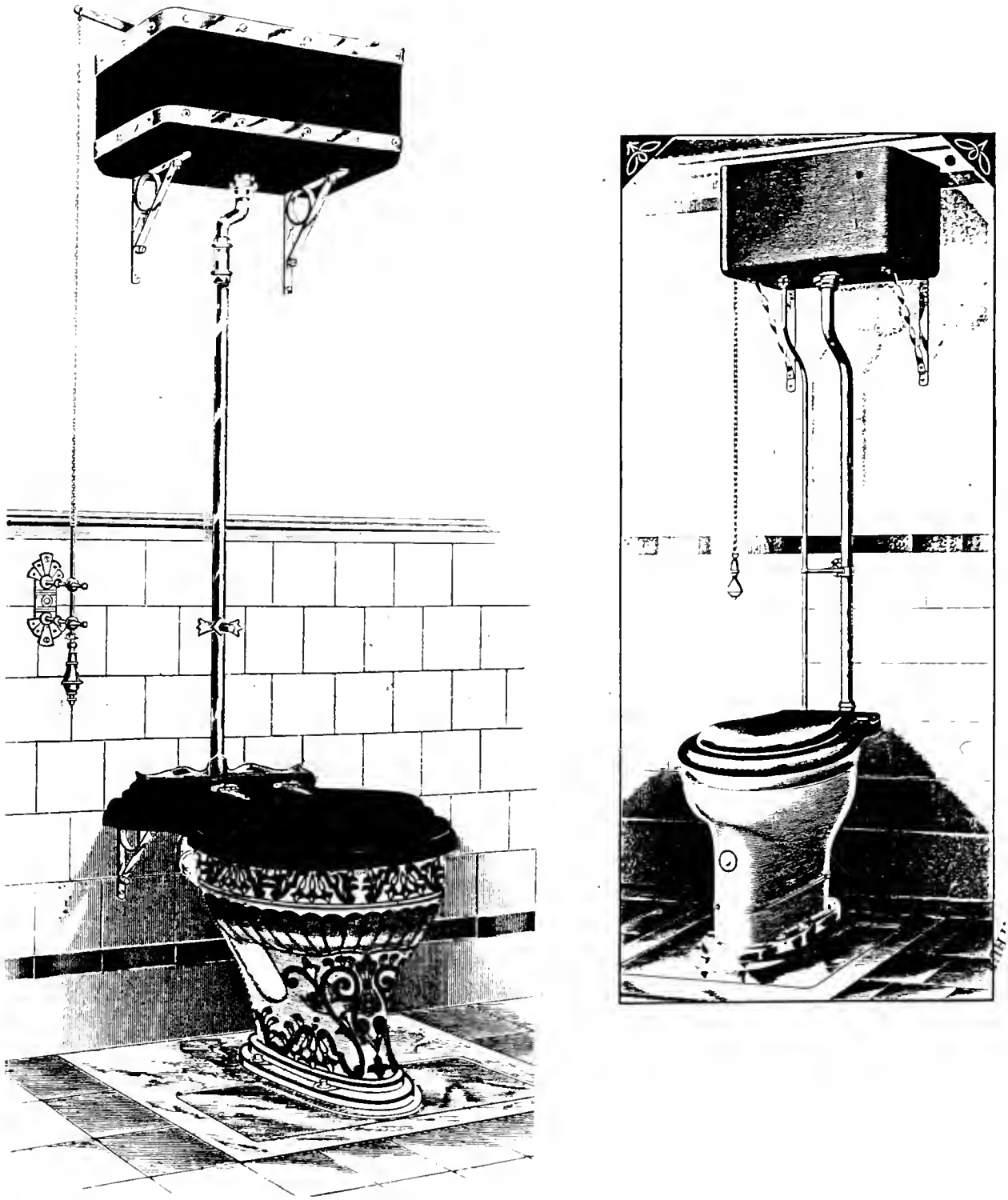


Figure 48-Water closets offered in the 1893 Haines, Jones and Cadbury Company and 1900 F.W. Webb trade catalogs

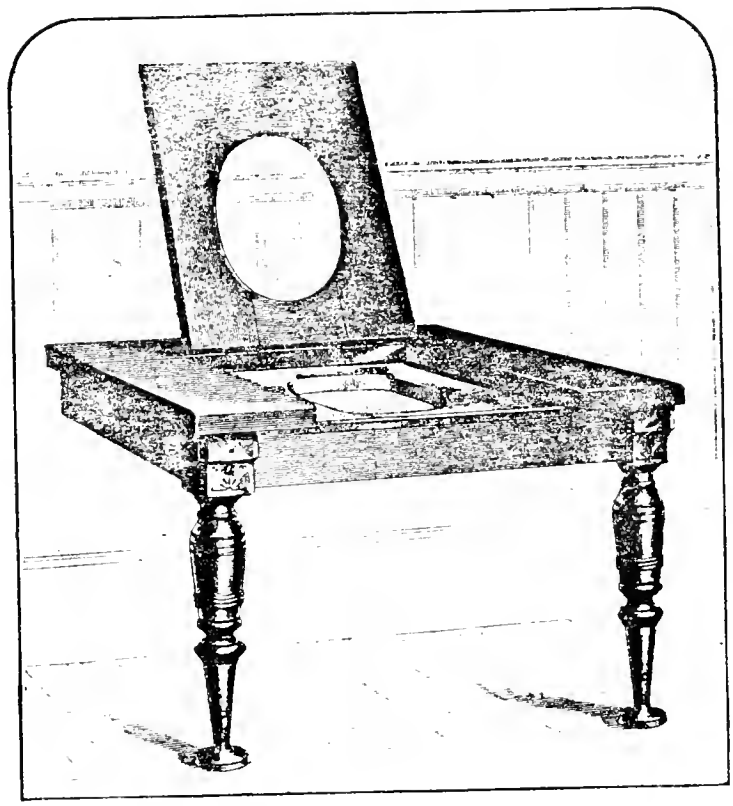


Figure 49-Water closet seat illustrated in the 1888 J.L. Mott Company trade catalog

Figure 50-Water closet bowls illustrated in Clean and Decent

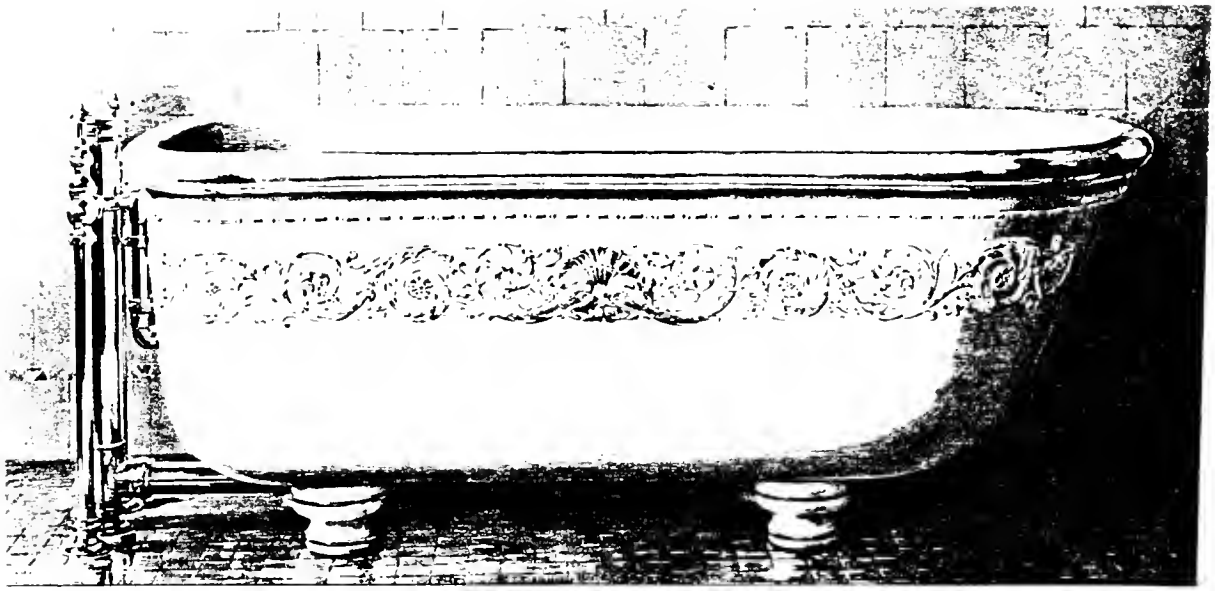


Plate 13-R

Figure 51-Porcelain bathtub offered in the 1897 J.L. Mott Company trade catalog

Figure 52-Steel bathtub advertised in the August, 1894 issue of The Century Illustrated Monthly Magazine

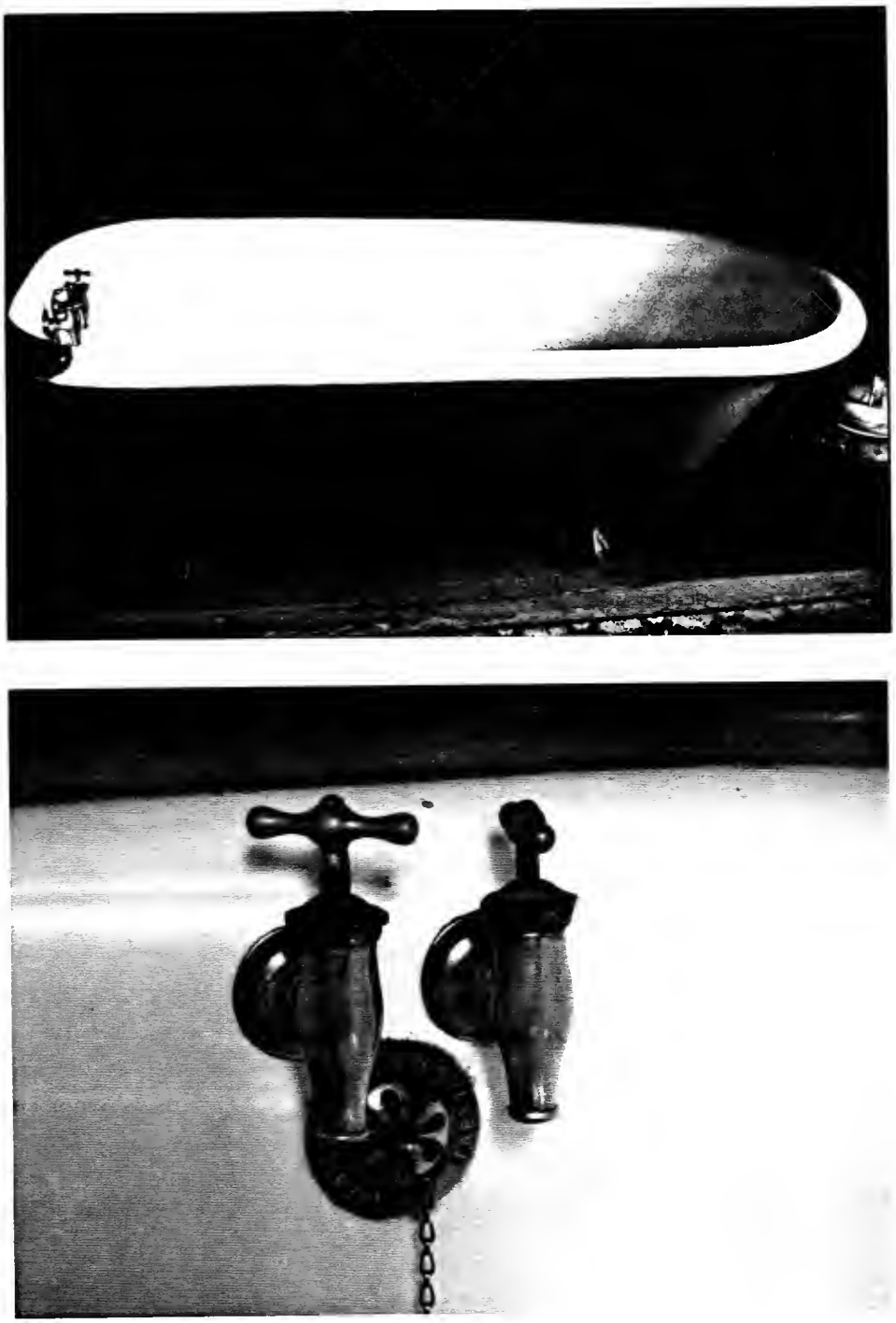


Figure 53-C.1877-1884 bathtub and fittings at the Asa Packer Mansion (photograph by author)

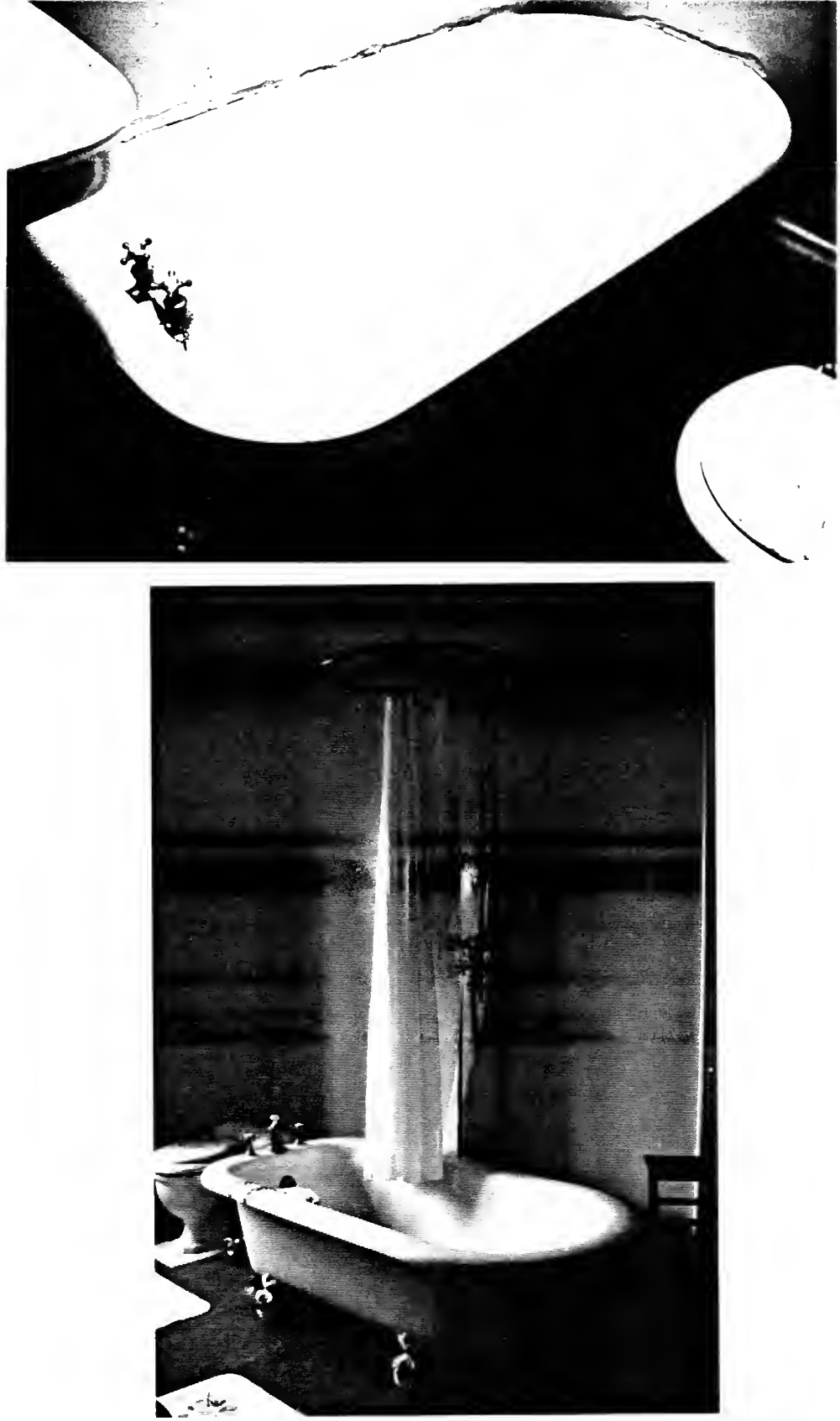


Figure 54-Late nineteenth-century bathtubs at Lyndhurst (photograph by author)

Figure 55-Late nineteenth-century bathtub at Glenmont (photograph by author)

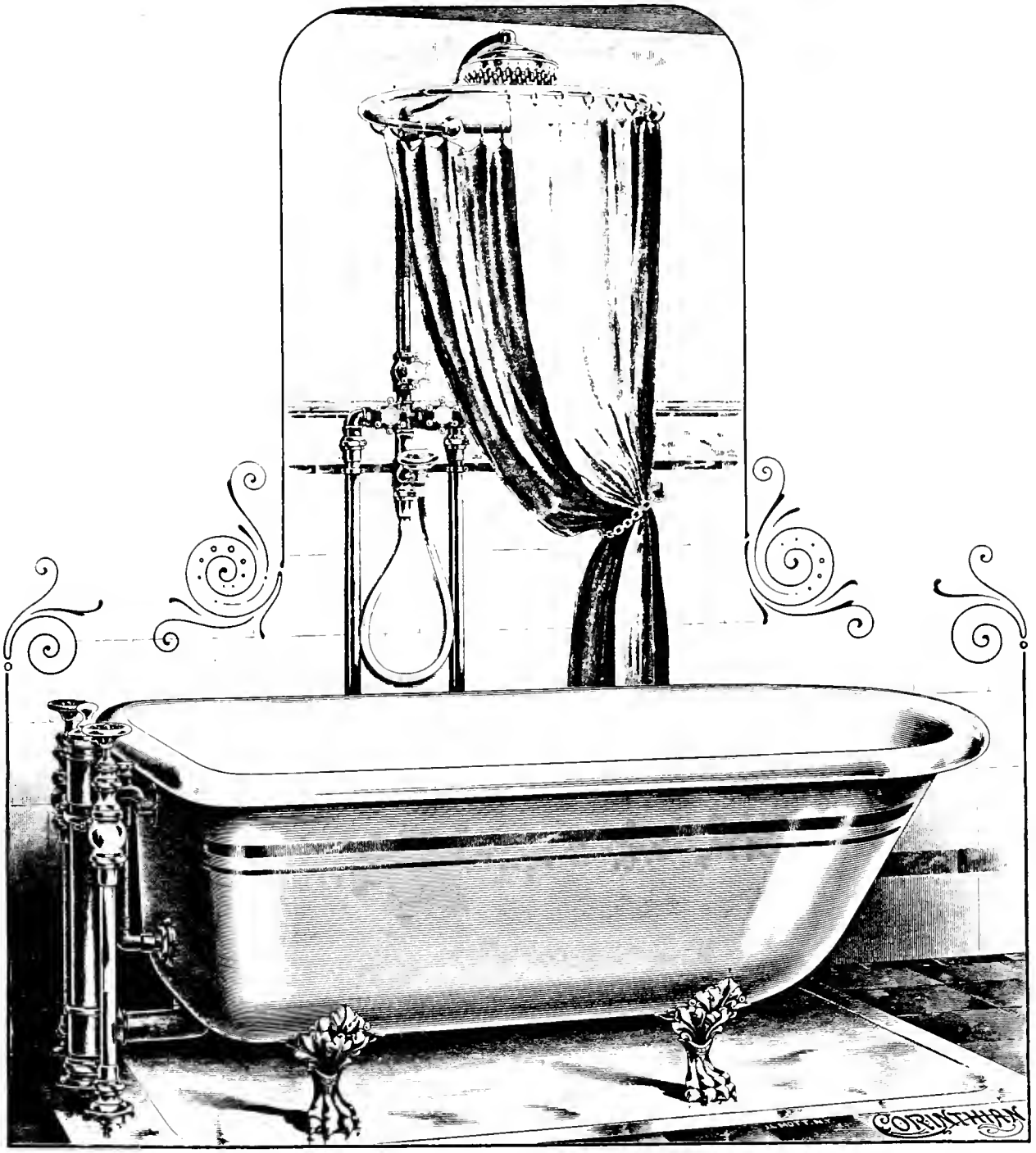


Plate 90-R

Figure 56-Shower bath offered in the 1897 J.L. Mott Company trade catalog

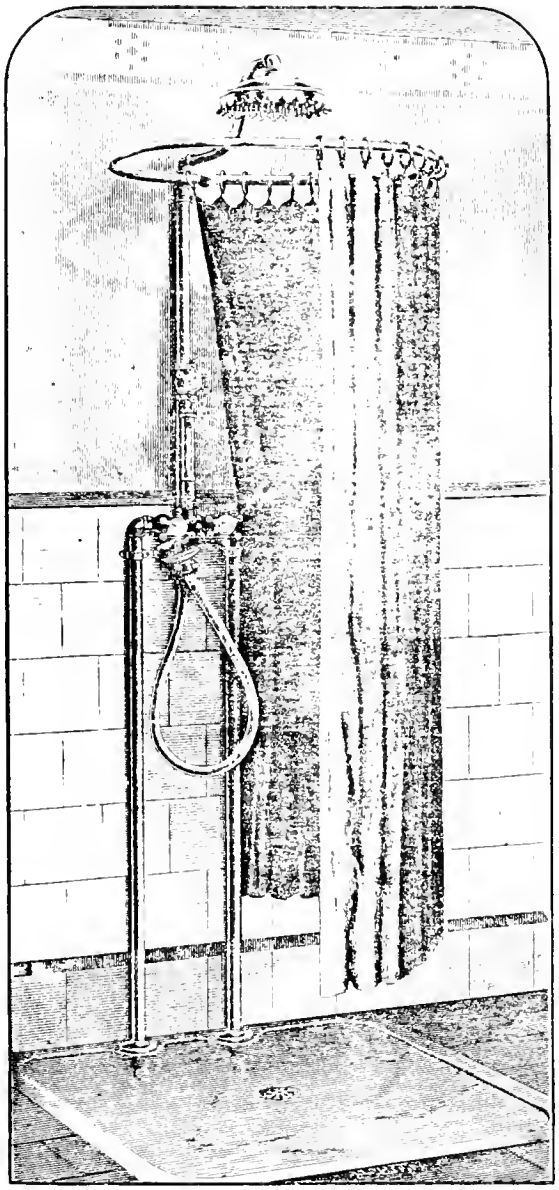


PLATE 62½-G.

NICKEL-PLATED BRASS SHOWER,

With Thermometer, Shampoo, Curtain Ring, Curtain and Supply Pipes to Floor.
Also furnished without Curtain Ring and Curtain if so ordered.

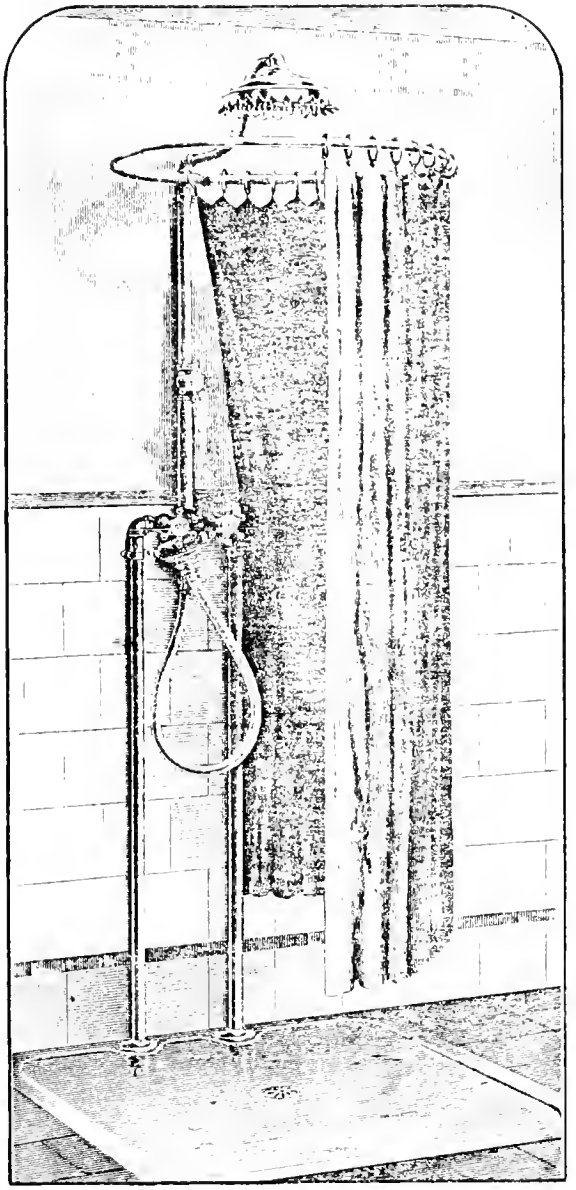


PLATE 63-G.

NICKEL-PLATED BRASS SHOWER,

With Shampoo, Curtain Ring, Curtain and Supply Pipes to Floor.

The novel and special feature of Plate 62½-G is that by means of the Mixing Chamber and Thermometer, the temperature of the water can be gauged and is registered before opening the Upper Valve which allows water to pass to the Shower.

Diameter of Shower, 8½ inches. Diameter of Curtain Ring, 25 inches

Plates 62½-G and 63-G are adapted for use in Bathing Establishments and over Baths where it is desired to confine the spray within the Curtain.

Figure 57-Showers offered in the 1888 J.L. Mott Company trade catalog

SHOWER BATH

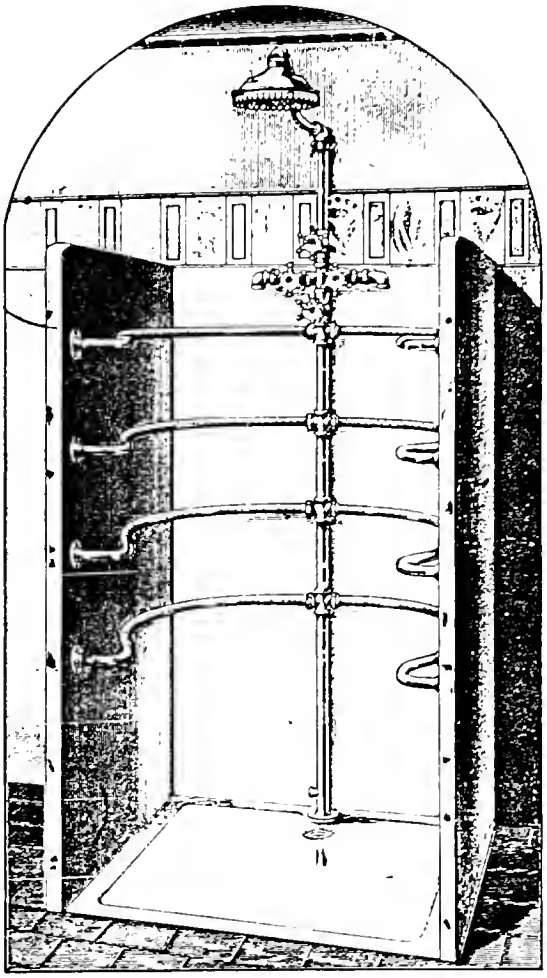


Plate 1098-B.

SHOWER BATH

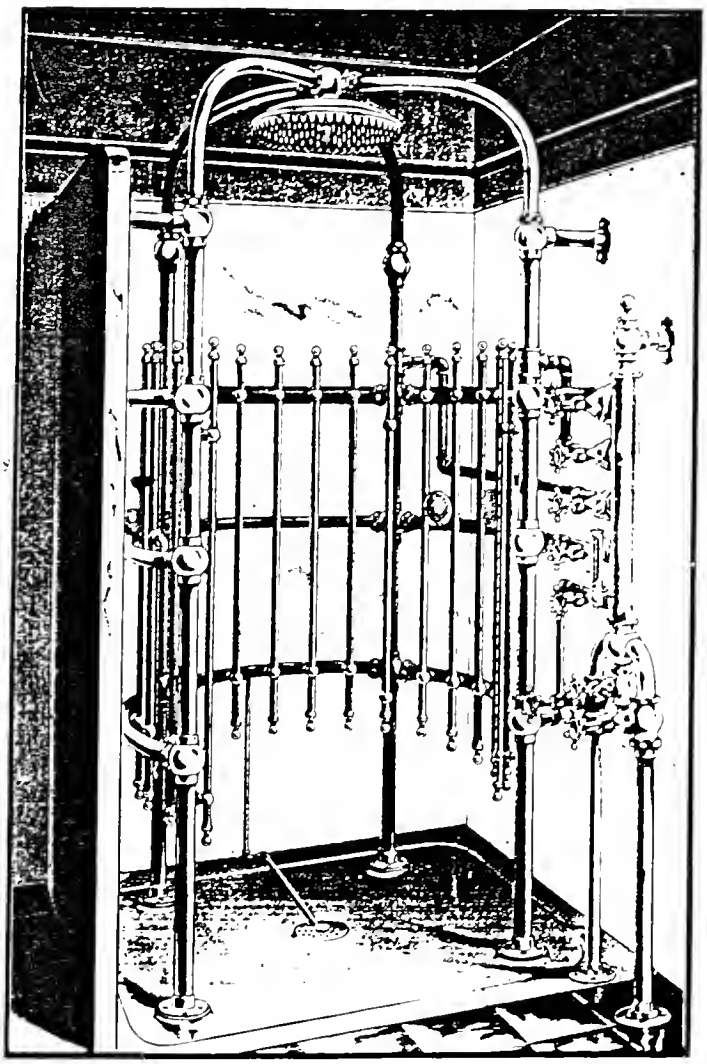


Plate 1100-B.

Figure 58-Needle and shower baths offered in the 1900 F.W. Webb Company trade catalog

Figure 59-Decorations illustrated in Clean and Decent

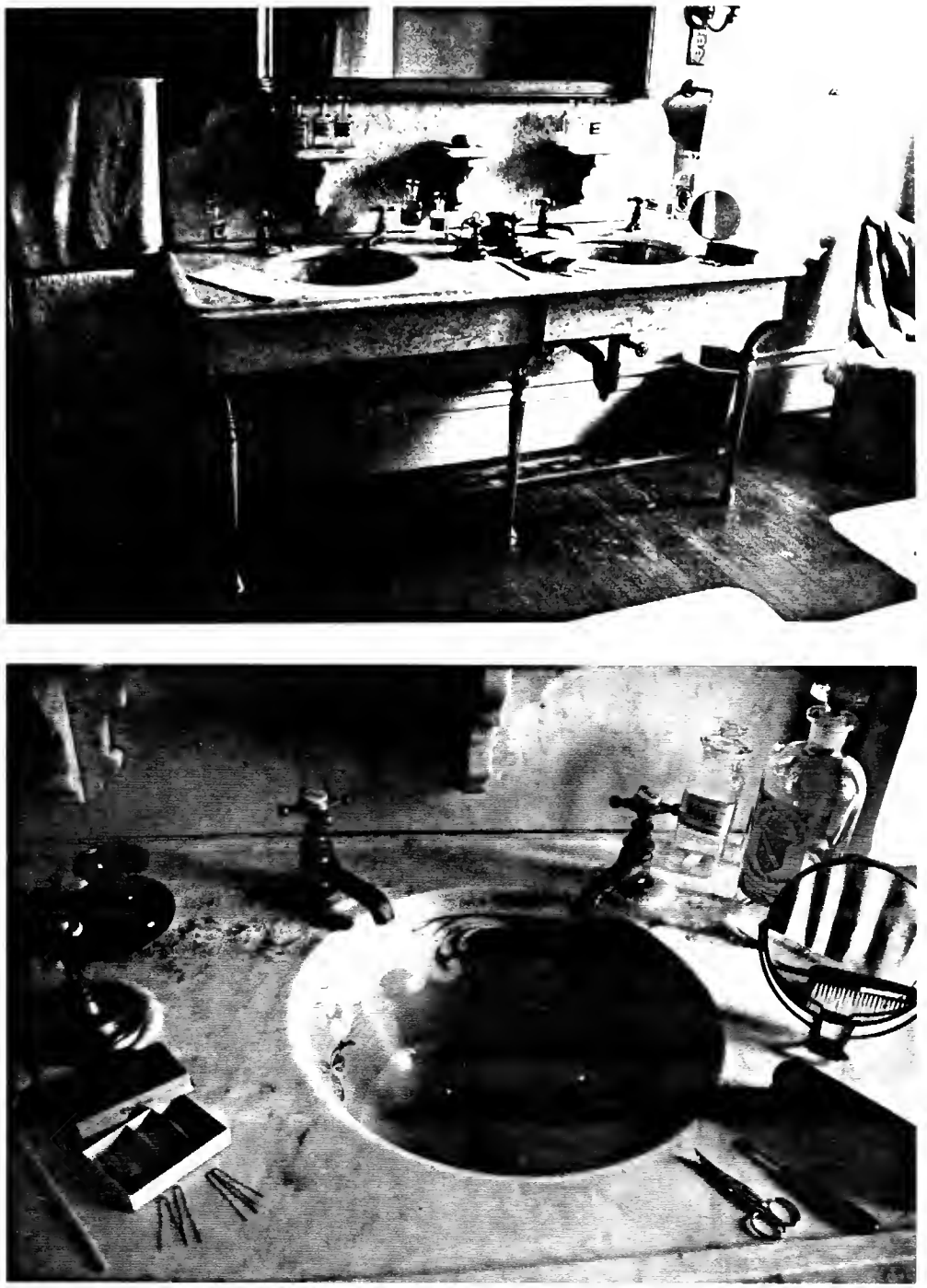


Figure 60-Late nineteenth-century marble lavatory at Lyndhurst (photograph by author)

Figure 61-Late nineteenth-century marble lavatories at Lyndhurst (photographs by author)

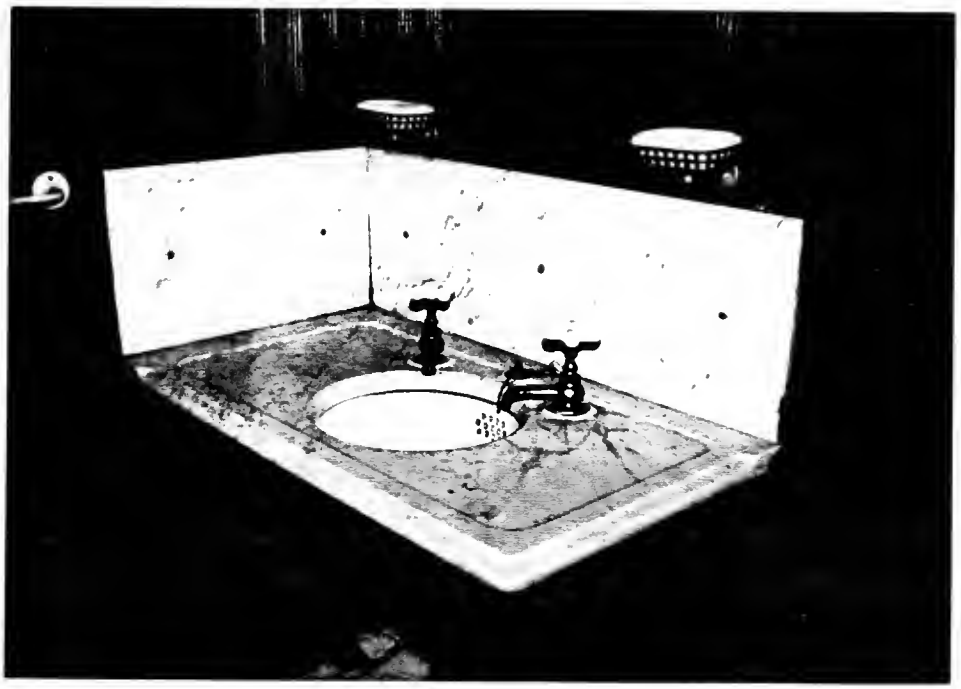


Figure 62-Late nineteenth-century lavatory at the Edison laboratory (photograph by author)

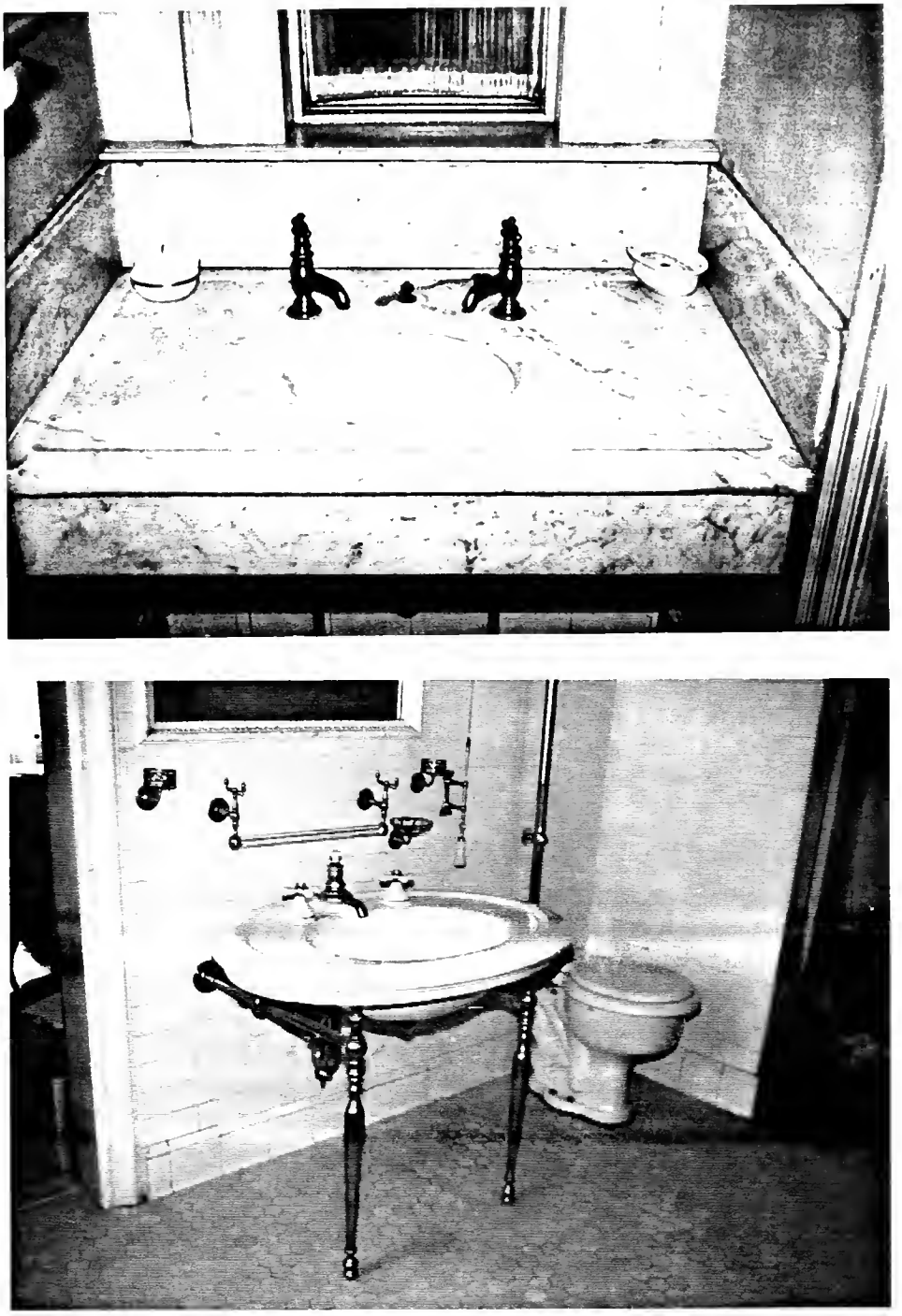


Figure 63-Late nineteenth-century lavatories at Glenmont (photograph by author)

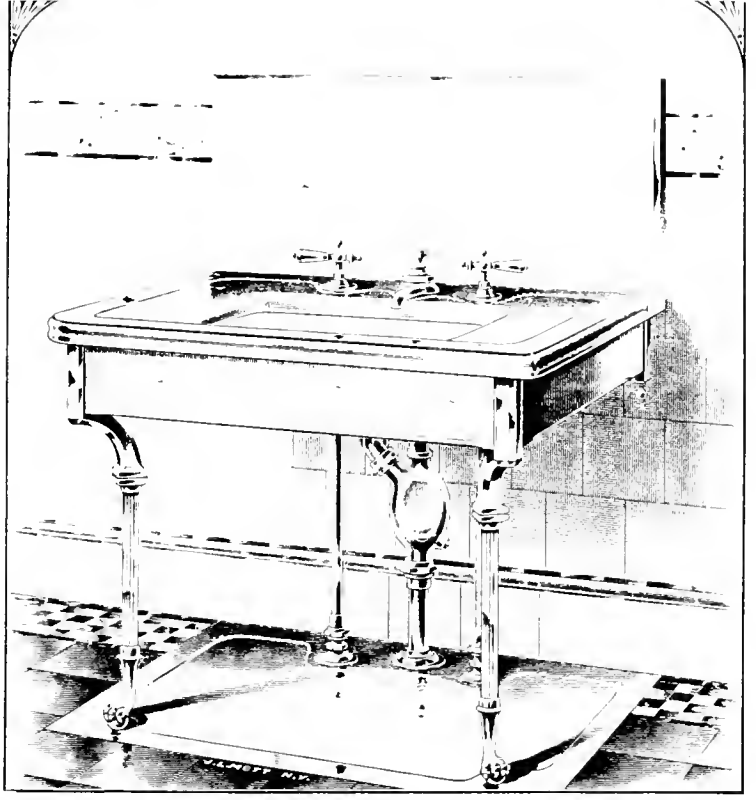


Plate 303-R

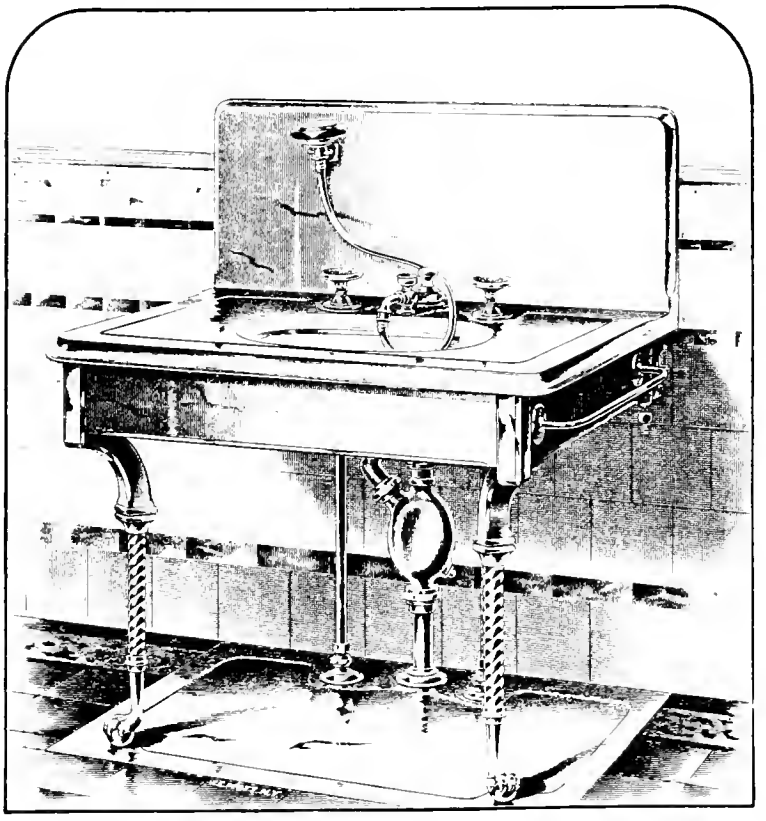


Plate 304-R

Figure 64-Marble lavatories offered in the 1897 J.L. Mott Company trade catalog

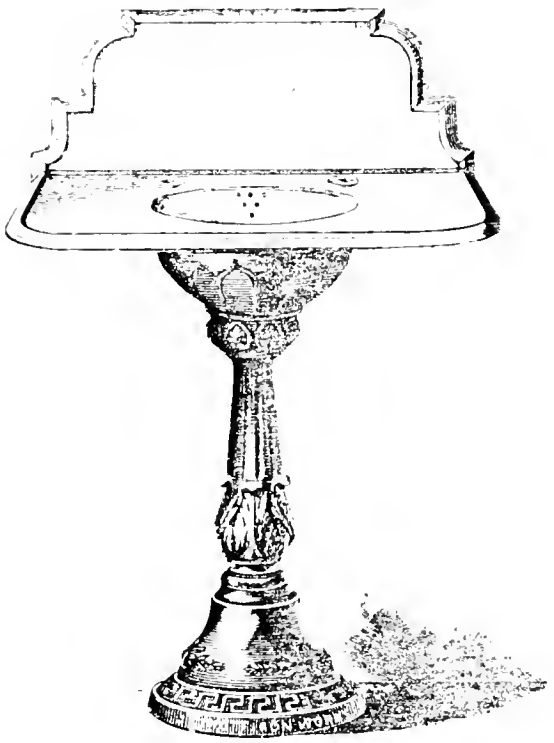


PLATE 448-G.

PLATE 452-G.

Figure 65-Pedestal lavatories offered in the 1888 J.L. Mott Company trade catalog

COMPRESSION PLAIN BIBB.

FLANGE NUT AND BENT COUPLING.

Fig. 625.

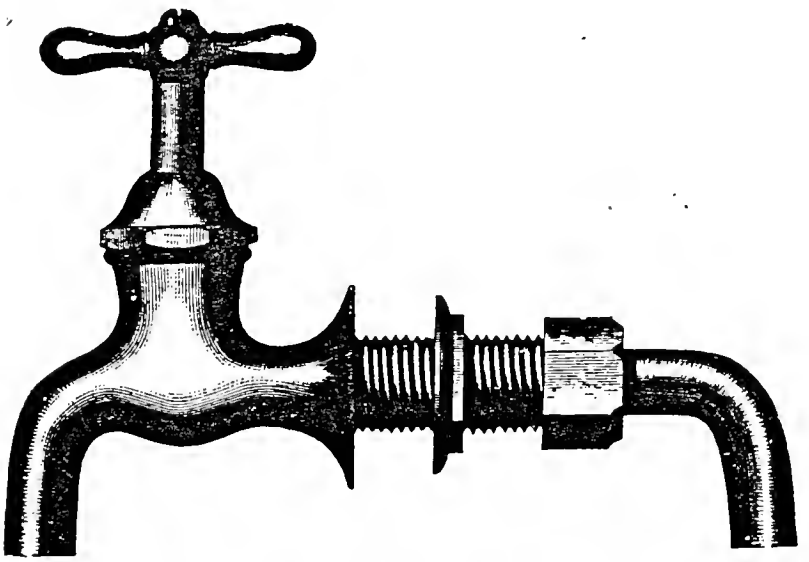
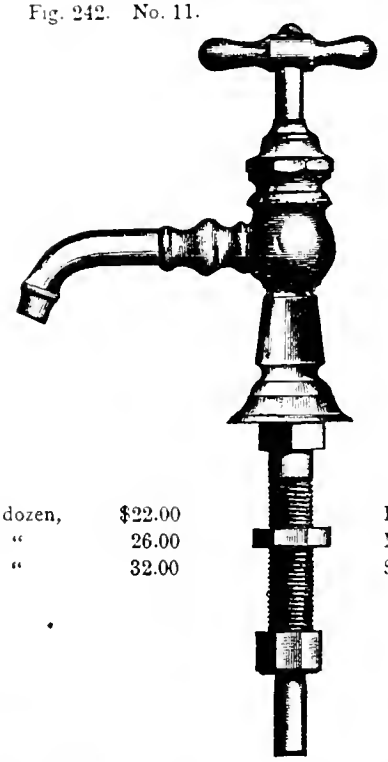


Figure 66-Basin cock offered in the 1872 Waefelaer and Duysters trade catalog

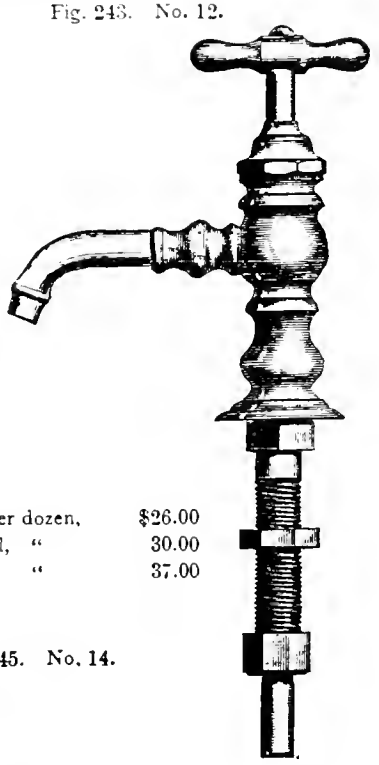
COOPER COMPRESSION BASIN COCKS.

Fig. 242. No. 11.



Brass,	per dozen,	$22.00
Nickel-Plated,	"	26.00
Silver	" "	32.00

Fig. 243. No. 12.



Brass,	per dozen,	$26.00
Nickel-Plated,	"	30.00
Silver	" "	37.00

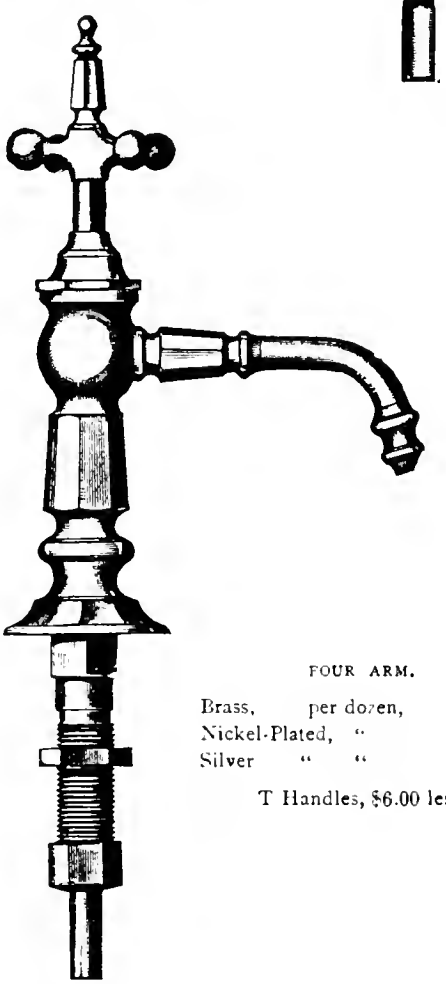
Fig. 245. No. 14.

Fig. 244. No. 13.

FOUR ARM.

Brass,	per dozen,	$44.00
Nickel-Plated,	"	49.00
Silver	" "	58.00

T Handles, $4.00 less.



FOUR ARM.

Brass,	per dozen,	$66.00
Nickel-Plated,	"	75.00
Silver	" "	90.00

T Handles, $6.00 less.

Figure 67-Basin cocks offered in the 1884 Cooper, Jones and Cadbury trade catalog

IMPROVED BASIN COCKS.

Fig. 277. No. 0.

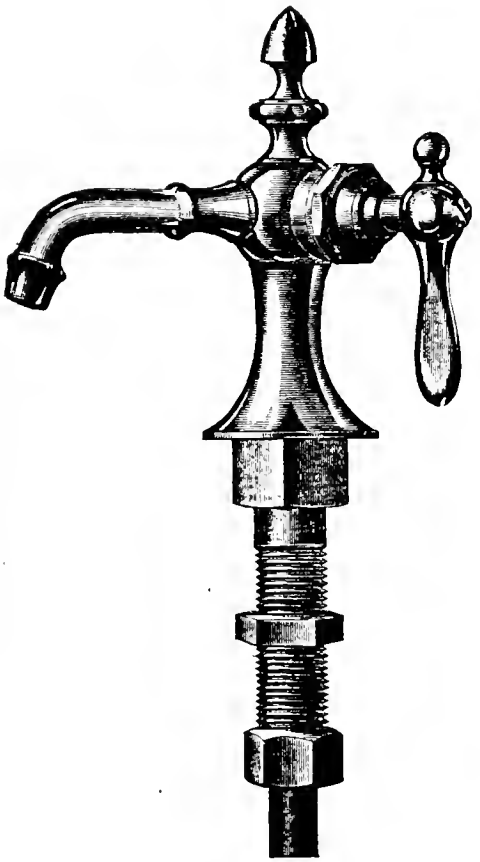


Fig. 278. No. 1.

	No. 0.	No. 1.
Finished, per dozen,	$30.00	$33.00
Nickel-Plated, " "	36.00	40.00
Silver " " "	42.00	46.00

Figure 68-Basin cocks offered in the 1884 Cooper, Jones and Cadbury trade catalog

Figure 69-Late nineteenth-century bathroom at Glenmont (photograph by author)

Plate 199-R

SOAP DISH

China, White	$1 75
Same, Touched in Gold	2 25
Vitro-adamant	1 25

Plate 200-R

SOAP DISH

TO GO AGAINST WALL

No. 1—Nickel-plated Brass size, 6 by 3½ inches	$2 00
Same, Silver-plated	4 00
No. 2—Nickel-plated Brass size, 7 by 4½ inches	3 00
Same, Silver-plated	5 50

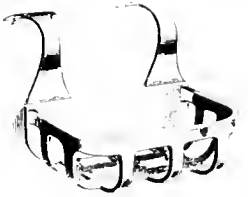


Plate 201-R

SOAP DISH

TO ATTACH TO END OF BATH

No. 1—Nickel-plated Brass size, 5½ by 3½ inches	$2 00
Same, Silver-plated	4 00
No. 2—Nickel-plated Brass size, 7½ by 4½ inches	3 00
Same, Silver-plated	5 50

When ordering state for what kind of Bath Soap Dish is desired

Plate 202-R

China Soap Dish with Nickel-plated Brass Holder . . $2 75
Same, with Silver-plated Holder . . 4 00
Oval, 5½ by 4 inches.
If preferred, the Dish can be furnished of Nickel-plated Brass at same price.

Plate 203-R

SOAP AND TOOTH BRUSH DISH

China, White	$2 25
Same, Touched in Gold	3 00
Vitro-adamant, White	1 75

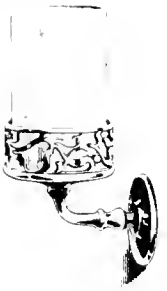


Plate 204-R

China Tooth Brush Vase with Nickel-plated Brass Holder	$2 00
Same, with Silver-plated Holder	3 50

If Cup is decorated with Three Gold Lines, add 75 cents. Holder only, Nickel-plated, $1 50. Silver-plated, $3. Inside diameter, 2⅜ inches; depth, 1¼ inches.

Plate 205-R

SOAP DISH

Nickel-plated Brass	$1 50
Silver-plated Brass	3 50

Size, 5½ by 4 inches.

Plate 206-R

China Mug with Nickel-plated Brass Holder	$2 75
Same, with Silver-plated Holder	4 50

If Mug is decorated with Three Gold Lines, add 75 cents. Nickel plated Holder only, $2; Silver-plated, $3 75. Inside diameter of Holder, 3⅜ inches; depth, 1¼ inches.

Plate 207-R

SPONGE HOLDER

Vitro-adamant, White	$2 25
Same, Touched in Gold	3 25

Plate 208-R

TOOTH BRUSH HOLDER

Nickel-plated Brass	$1 25
Silver-plated Brass	2 75

Size, 5¼ by 2¾ inches

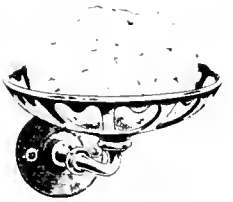


Plate 209-R

HOLDER FOR SMALL SPONGE

Nickel-plated Brass	$1 25
Silver-plated Brass	3 25

Oval, 5½ by 4¼ inches.

Plate 210-R

TUMBLER HOLDER

Nickel-plated Brass	$1 50
Silver-plated Brass	3 00

Inside diameter, 2⅜ inches, depth, 1¼ inches

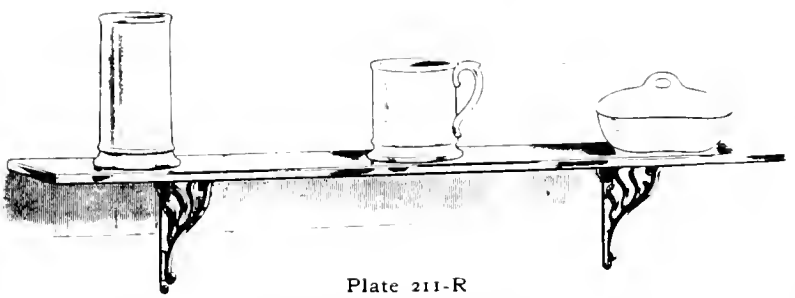


Plate 211-R

CHINA TOILET SET

China Tooth Brush Vase	$0 75	China Mug	$0 75	China Soap Dish	$1 50
Same, decorated with Three Gold Lines	1 50	Same	1 50	Same	2 75

Plate Glass Shelf, 33 by 5", ½" thick, with Nickel-plated Brass Brackets 10 00
Same, with Silver-plated Brackets 11 00

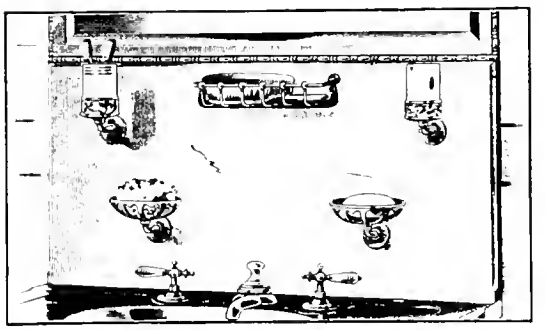
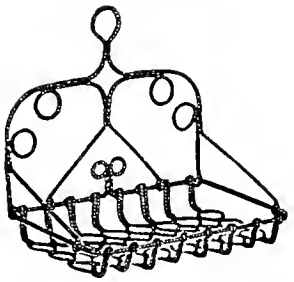


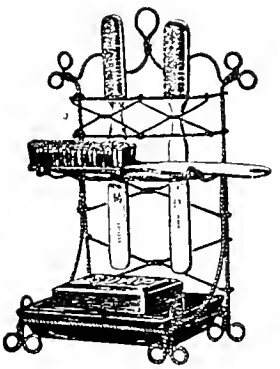
Plate 212-R

Plate 212-R shows a most convenient and sensible arrangement of Lavatory Appliances. The Holders for Soap Dish, Tooth Brushes, Tumbler, Sponge, Comb and Brush are attached to the marble back, and each has its particular place, so that the slab is entirely unencumbered

Figure 70-Bathroom accessories offered in the 1897 J.L. Mott Company trade catalog

Soap Brackets.





Toilet Stands.

Tooth Brush Stands.

Towel Stands.

Sponge Baskets.

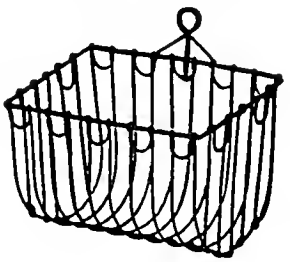
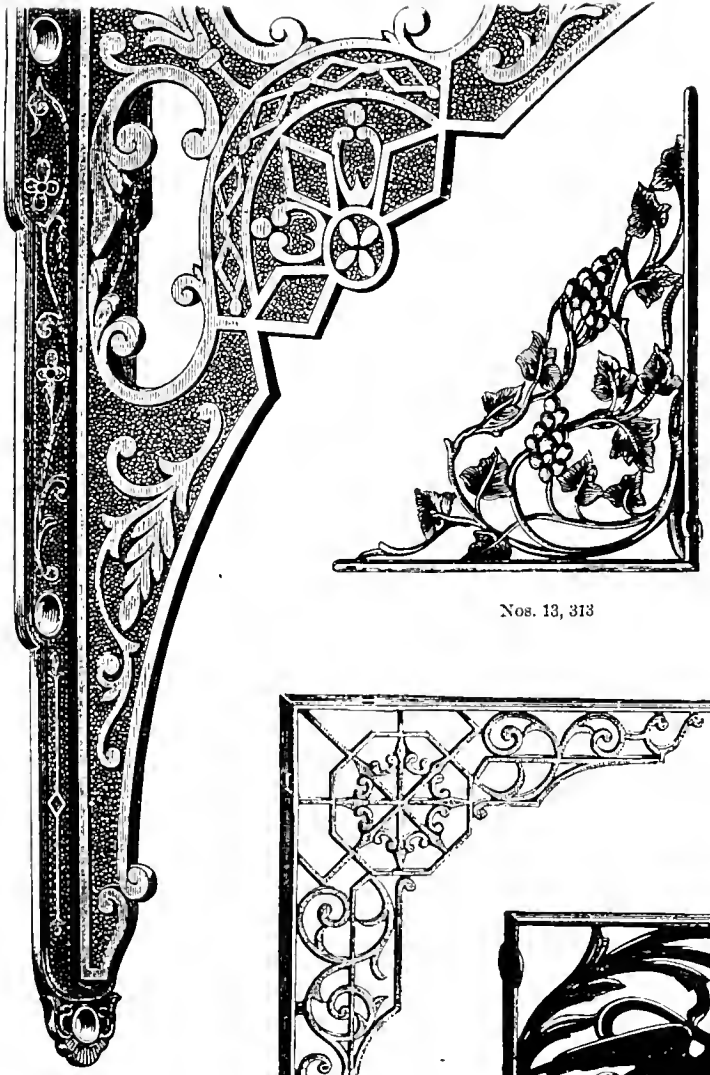


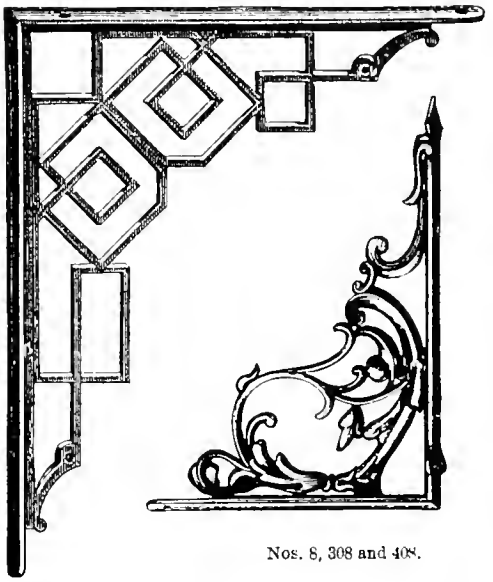
Figure 71-Bathroom accessories illustrated in American Victorian: A Style and Source Book (1984)

Figure 72-Toilet paper dispenser at Lyndhurst (photograph by author)



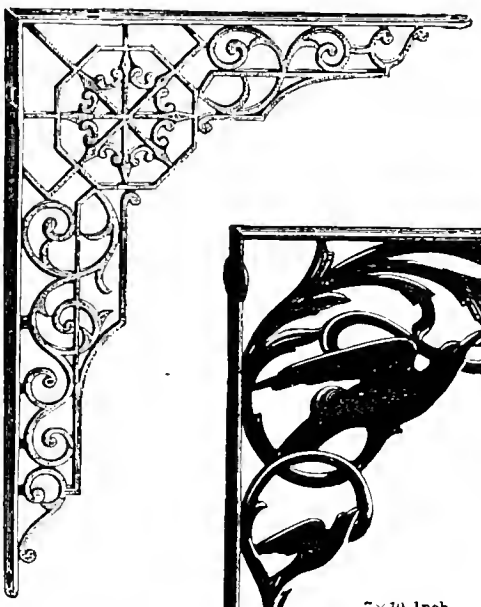
No. 577.
Black and Gilt.

Nos. 13, 313

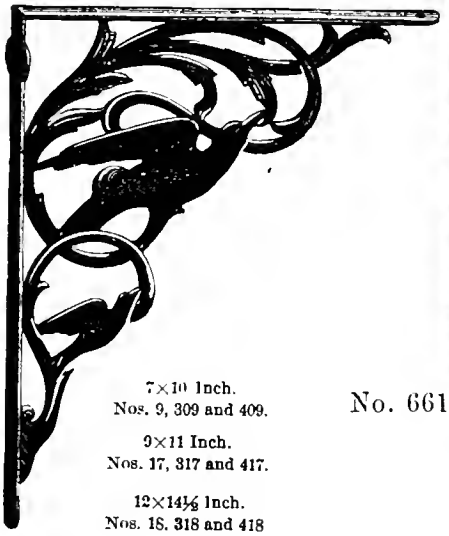


Nos. 8, 308 and 408.

No 3512—Berlin Bronzed.



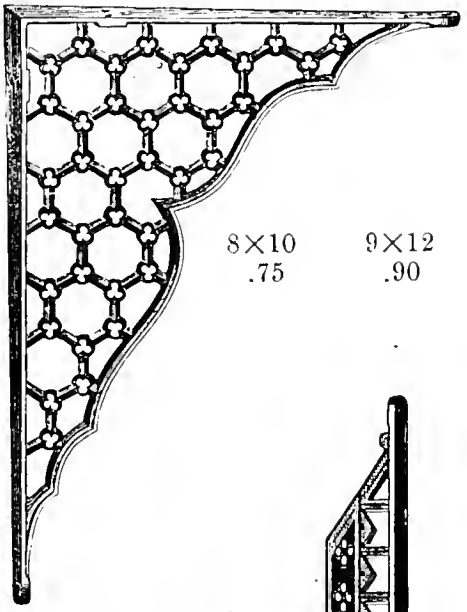
No. 7623—Berlin Bronze



7×10 Inch.
Nos. 9, 309 and 409.

9×11 Inch.
Nos. 17, 317 and 417.

12×14½ Inch.
Nos. 18, 318 and 418



8×10	9×12
.75	.90

No. 6612—Berlin Bronzed

6×8	7×9
.45	.60

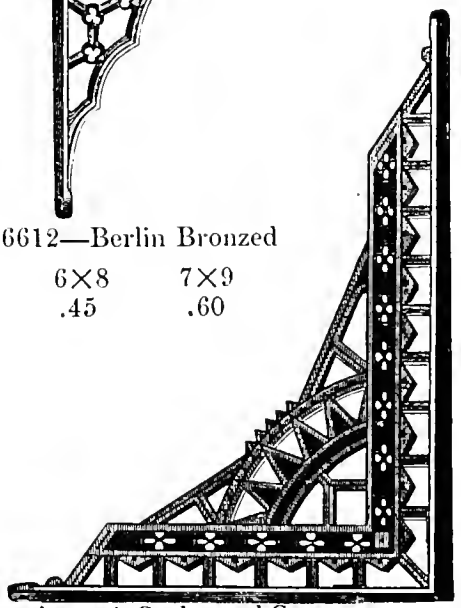


Figure 73-Cast-iron brackets illustrated in American Victorian: A Style and Source Book (1984)

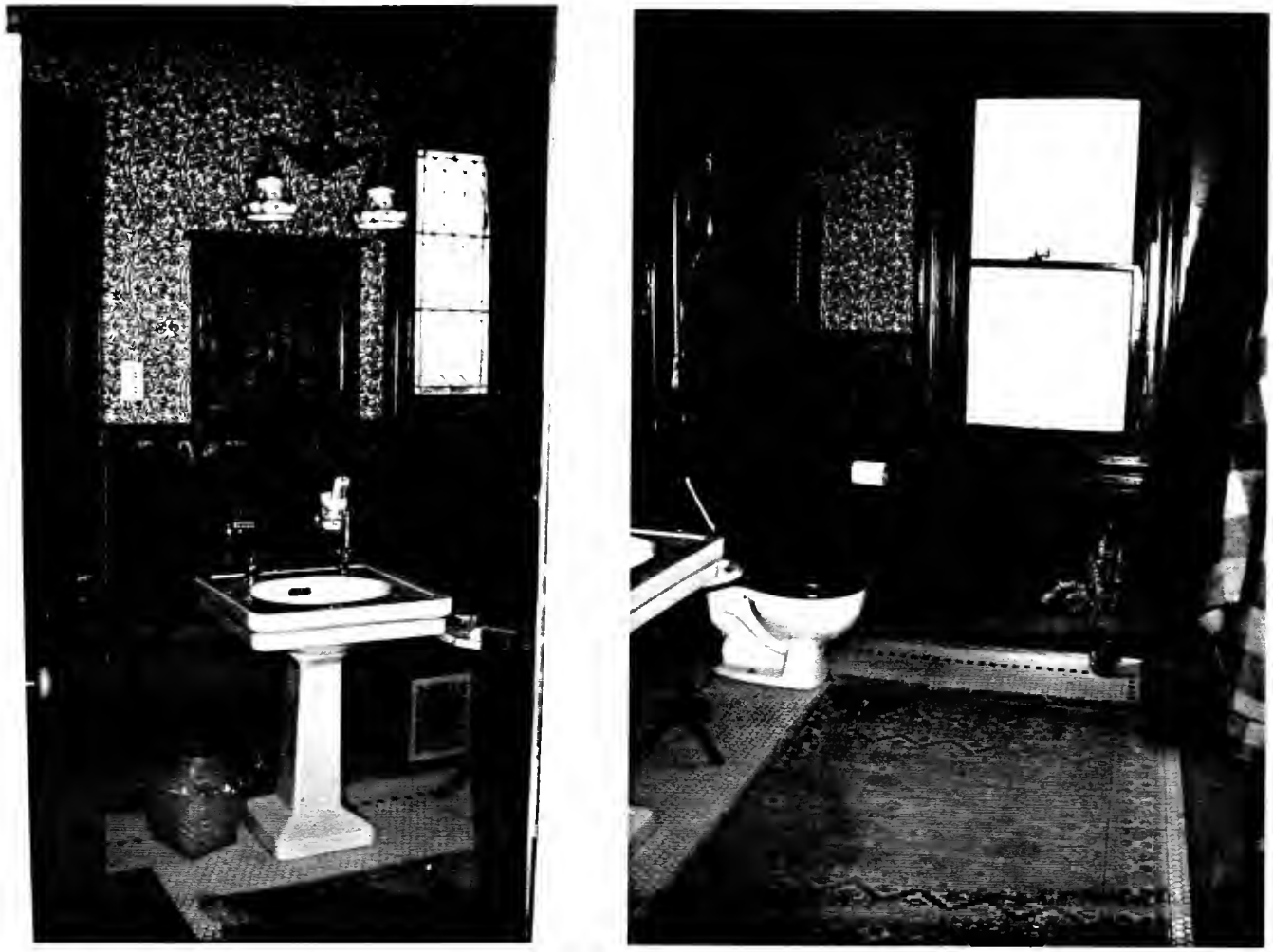


Figure 74-Restored late nineteenth-century bathroom in Landsdowne, Pennsylvania (photographs by author)

Figure 75-Restored late nineteenth-century bathroom in Landsdowne, Pennsylvania (photographs by author)

APPENDIX A

EXCERPTS FROM CHARLES FOSTER'S JOURNAL

August 1886	No rain of consequence in 39 days cistern dry most of the time for 6 weeks
May 1887	hauled water for cistern part of weeks much of time
July 29, 1889	cleaned cesspool
March 6, 1894	cistern been dry for some days
March 15, 1894	cistern dry yet
March 23, 1894	probably a little water in cistern
April 4, 1894	first rain to put any water of consequence in cistern for weeks
January 23, 1897	pipe from tank froze but thawed out later
February 13, 1907	began fixing bathroom
February 28, 1907	plumbers appear to be through with bathroom
May 21, 1914	measure reservoir go down early
June 4, 1914	measure reservoir first thing
August 24, 1914	give Youngs washers-change faucet
March 8, 1919	lagerese here fixing...water closet

EXCERPTS FROM CHARLES FOSTER'S LEDGER

December 7, 1889	paid $100.00 to J.L. Mott Ironworks
March 7, 1890	paid $150.00 to Kay Bros.
April 13, 1893	owed (paid) $25.90 to J.L. Mott Iron Works
August 2, 1893	paid $9.00 to J.L. Mott Ironworks

APPENDIX B

PLUMBING BILLS FROM THE WILLOWS

MORRISTOWN, N. J., Dec. 1 1910

Mr Chas G. Foster

STOVES, STOVE REPAIRS

A Full Line of Bath Room Specialties

SLATE, TIN ROOFING AND GENERAL SHEET IRON WORK

Gasolene in Large and Small Quantities

To H. M. SALKIND, Dr.

Plumbing, Tinning and Heating

JOBBING PROMPTLY ATTENDED TO

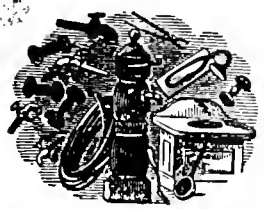
Telephone 421-J

36 MORRIS STREET

1909				
Mch	10	3½ hrs Time rep. pipe & faucets	2	10
		1 fuller ball 10¢ 1 comp. washer 5¢		15
April	8	1- 3/4" coupling & thread		60
	9	Contract lining box with zinc	7	00
	10	Bal. due on strainer purchased		05
	14	4 hrs. T. & H. rep. pipe on boiler	3	20
		3# lead pipe 30¢ 1# solder 30¢ ½ gal gas 10¢		70
	28	1-1½" union & washer (galv.)		75
		1-1½" galv. tee		25
Aug	9	1 set bricks & grate for #9 Hit laundry stove	2	50
	19	1 qt fire clay		15
	21	1 length stove pipe 15¢ 1 elbow 15¢		30
	30	1 wash boiler	1	75
Oct	20	1 set bricks & clamps for #9 Brighton	2	20
	22	1 blk iron pan	1	00
	26	1 front grate for #9 Brighton	1	50
Nov.	15	1 lid & shoot & piece for #9 Brighton	1	60
Dec	17	Time & matl. rep milk can, lid & strainer		50
1910				
Jany	6	1 hrs. Time getting out iron strip		60
		8# galv. iron		80
	8	2½ hrs. T. & H. lining WC	2	00
		5# copper #1 50 3 washers 15¢ solder & gas 25¢	1	90
Mch	24	4 hrs. T. & H. changing basin	3	20

34 80

Electric Bell Work



Water and Air Pressure Machines for Lager Bier A Specialty. Machinery of All Kinds Repaired.

Morristown, N. J. August 1, 1916. 19

Mrs. C.G. Foster.

To JOHN V. SAGARESE, Dr.,

PRACTICAL

PLUMBER, STEAM & GAS FITTER

Hello 483-M. 39 MORRIS STREET

July	24,	Repaired water closet tank and soldered tank		
		tank ball at Mendem Road.		
		solder, gasoline and washers	.25	
		1/4 days time plumber and helper	1.70	
				$ 1.95

AUG - 9 1916

MORRISTOWN, N. J., Aug 9, 1922

Mr Hostes

TO JAMES APPLIN, DR.

PLUMBING, TINNING, STEAM FITTING

28 SPEEDWELL AVENUE TELEPHONE 191-M

	Selling a new flush valve in closet tank.		
1	Flush valve complete.		$4.80
	Gasoline & Solder.		.20
	Labor 2½ hrs. mec.		4.69
			$9.79

Received by Check
Sept 11-22.
James Applin
Chandlers

MORRISTOWN, N. J. Sept. 1929 192

Miss C. Foster

To H. M. SALKIND, Dr.

Plumbing, Tinning and Heating

JOBBING PROMPTLY ATTENDED TO

Telephone 421 — 38 MORRIS STREET

H. M. SALKIND

1- iron bath tub delivered	6.00

PAID SEP 26 1929

Per

MORRIS PLAINS, N. J. May 1-30

Miss.Cara Foster.

TO H. B. ARMSTRONG & SON, DR.

PLUMBING, TINNING, STEAM and HOT WATER HEATING

JOBBING PROMPTLY ATTENDED TO — 958 — SHOP AND RESIDENCE WEST HANOVER AVE., MORRIS PLAI

Installing Sink & tub Comb. as per estimate		$ 90.00
April 12- 3 lbs. galv iron	.12	.36
1/2 hours time plumber & helper	2.85	1.43
		$ 91.79

Paid May 15/30

H. B. Armstrong & Son

MORRISTOWN, N. J. Oct. 1, 1940

Miss C. Foster

H. M. SALKIND

PLUMBING, TINNING, AND HEATING

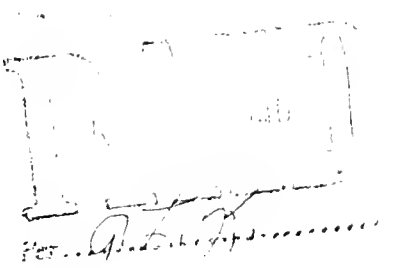
JOBBING PROMPTLY ATTENDED TO

WILLIAMS OIL-O-MATIC HEATING

TELEPHONE 4-0421

38 MORRIS STREET

Sept. 20	1 Bath Tub Faucet	5 00



APPENDIX C

PLUMBING FIXTURES AND FURNISHINGS AT THE WILLOWS

ROOM 205	14'-10" x 6'-2"
Water Closet	
Tank	1'-10 1/2" wide
	1'-9" high
Seat	1'-1 1/2" above floor
Bathtub	5'-8" long
	2'-6" wide
Lavatory	2'-3" long
	1'-9" wide
Medicine Cabinet	1'-9 1/2" wide
	1'-11 1/2' high
	8 1/4" deep
Shaving Stand	5'-3" high
Wainscoting	4'-1" high
ROOM 206	6'-10" x 5'-0"
Bathtub	4'-6" long
	2'-6" wide

OBJECTS IN ATTIC

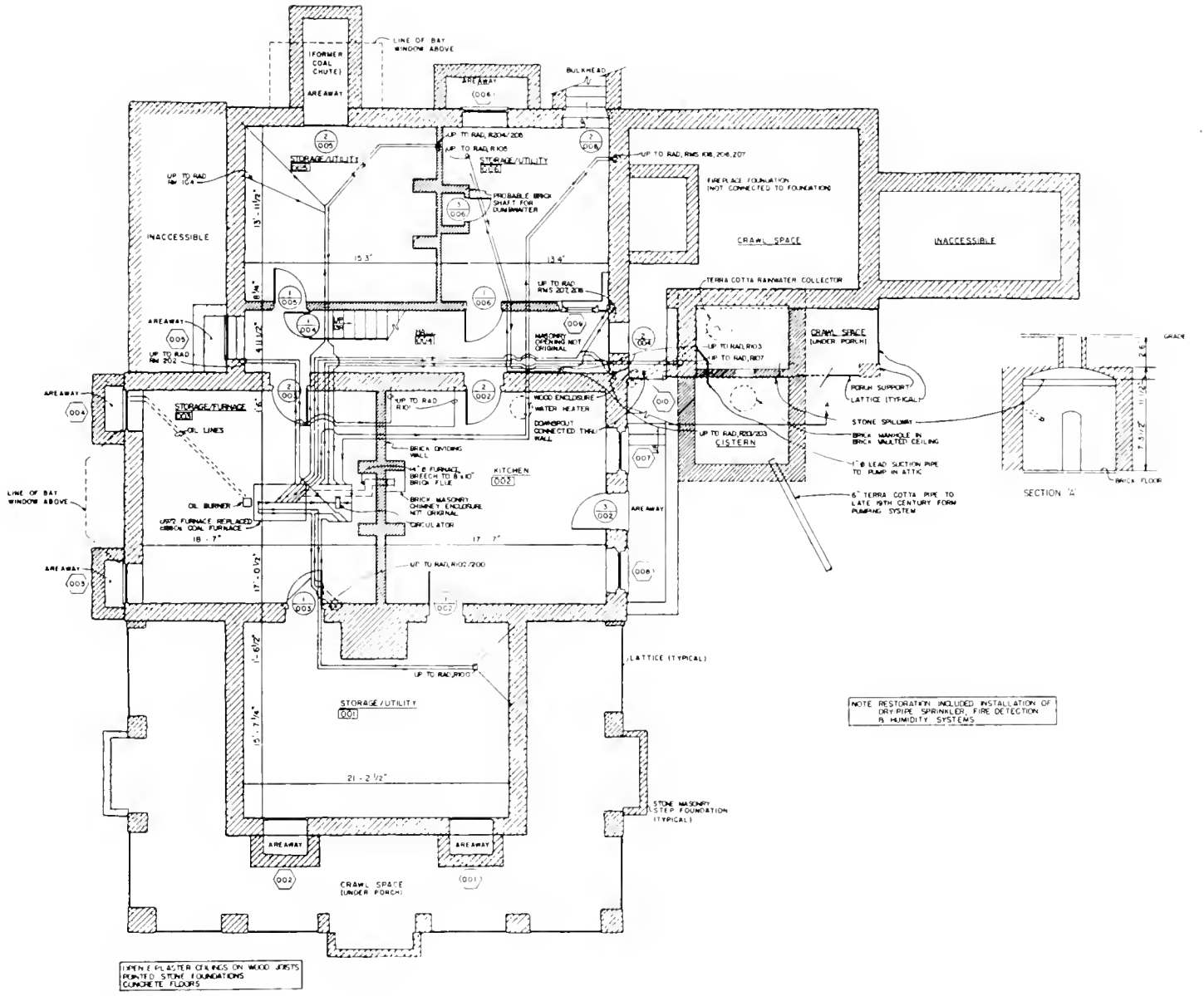
Cistern	7'-10" long
	4'-11" wide
	2'-4" deep
Marble lavatory	2'-6" long
	2'-2" wide
Basin	1'-0" diameter
Basin Cock	6" high
Marble slabs	(2) 5" x 2'-7"
	7 1/2" x 2'-4 1/2"
	1'-3" x 3'-4"
	1'-4 1/2" x 2' x 8"
Brackets	(1 pair) 1'-1/2" x 1'-3"
	(1 pair) 1'-0" x 1'-2"
Water-closet seat	2'-6" long
	1'-9" wide
Wood planks	2'-2" x 1'-2"
	4'-3" x 1'-2"

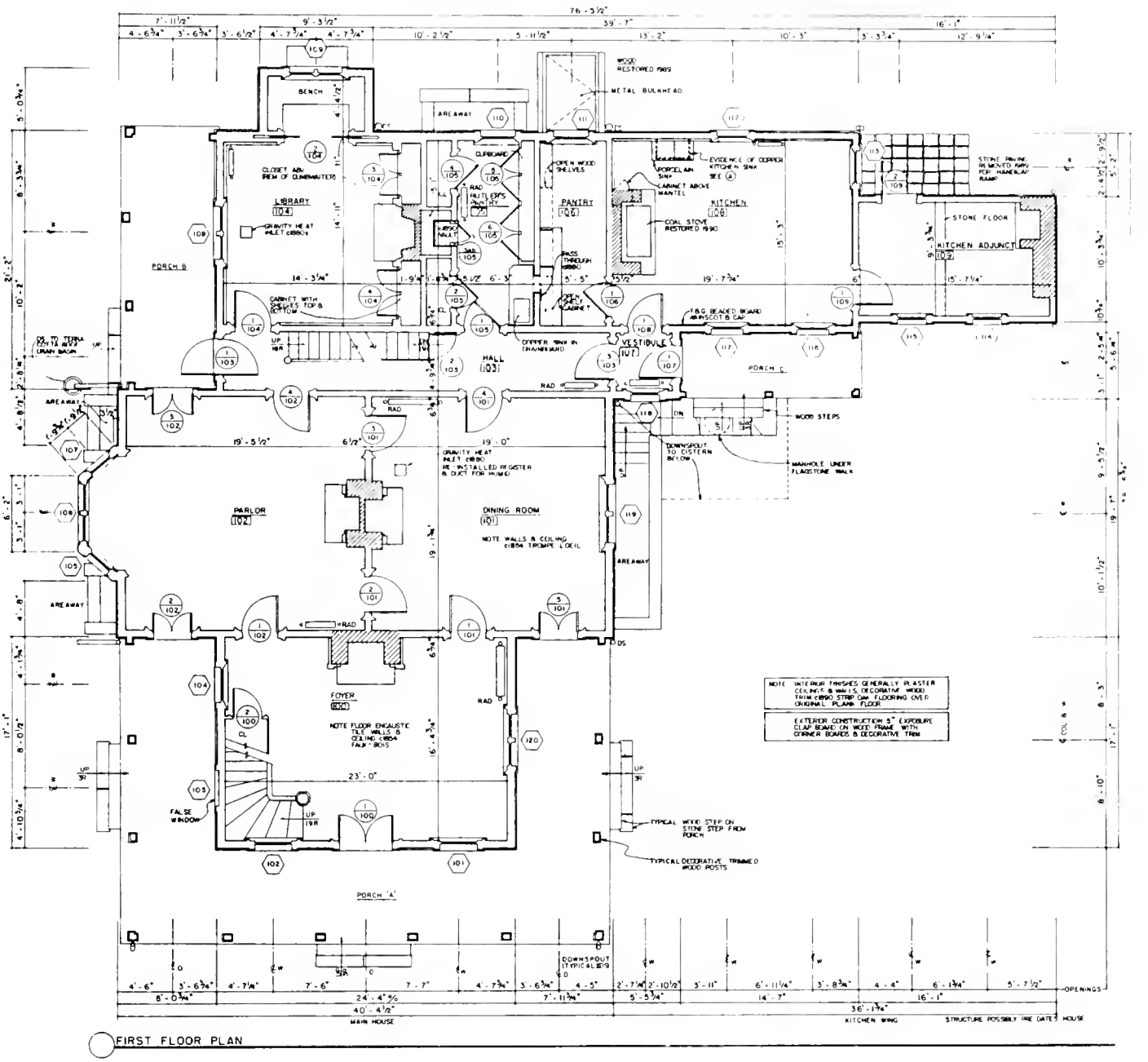
EXTERIOR ELEMENTS

Underground cistern	
	8'-3" high
	2'-6" below grade
Two chambers	
	each 7'-7" x 5'-9"

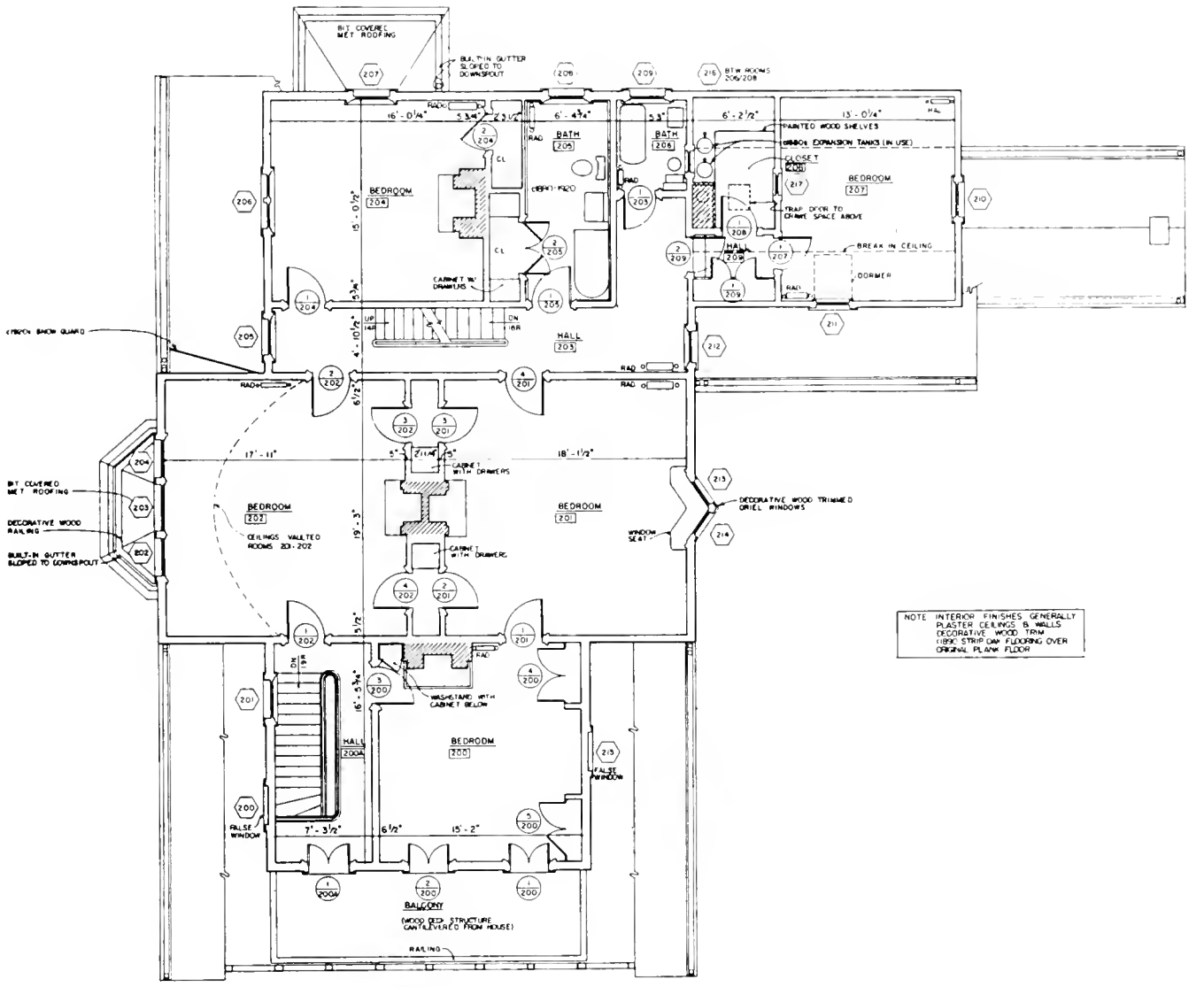
APPENDIX D

FLOOR PLANS OF THE WILLOWS

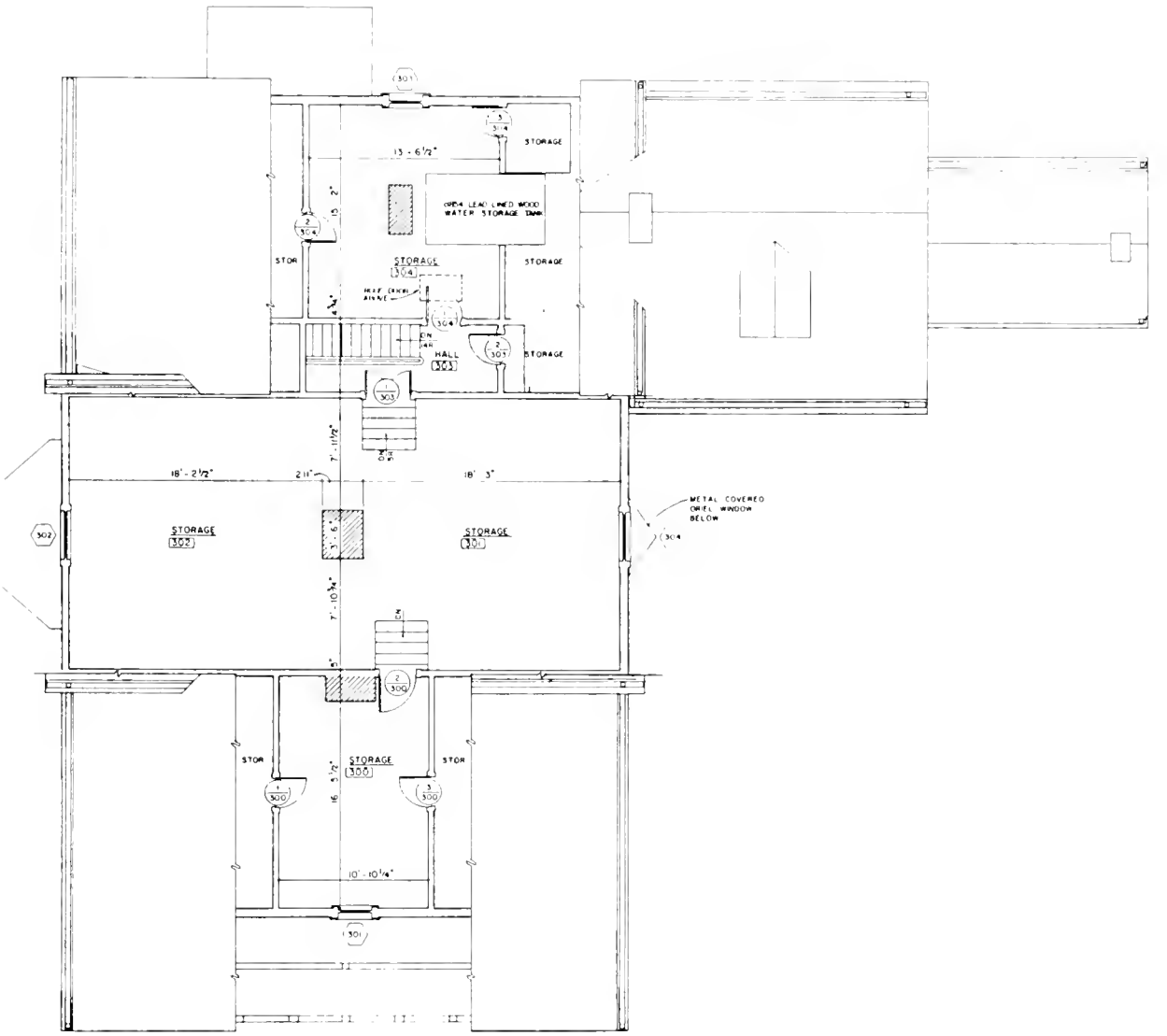




FIRST FLOOR PLAN



SECOND FLOOR PLAN



STORAGE
13 - 6 1/2"
STOR
STORAGE
STORAGE
HALL
STORAGE
18' - 2 1/2"
18' 3"
STORAGE
STORAGE
METAL COVERED
ORIEL WINDOW
BELOW
STOR
STORAGE
STOR
10' - 10 1/4"

APPENDIX E

HISTORIC SITES WITH NINETEENTH-CENTURY BATHROOMS

A.B. Cambell House
Spokane, WA

Asa Packer Mansion
Jim Thorpe, PA

The Breakers
Newport, RI

Bush House
Salem, OR

Chalfont Hotel
Cape May, NJ

Chateau-Sur-Mer
Newport, RI

The Elms
Newport, RI

The Frank Lloyd House and Studio
Oak Park, IL

Frick House
Pittsburgh, PA

The Gibson House Museum
Boston, MA

Glenmont
West Orange, NJ

Grant-Kohrs Ranch
Deer Lodge, MT

Harriet Beecher-Stowe House
Hartford, CT

The Hermitage
Ho-Ho-Kus, NJ

Lyndhurst
Tarrytown, NY

Shelton-McMurphey-Johnson House
Eugene, OR

Stimson-Green House
Seattle, WA

The Willows
Morristown, NJ

APPENDIX F

LATE NINETEENTH-CENTURY BATHROOM SCHEMES

The fixtures shown have little or no woodwork about them, the lavatory being supported on artistic brass or bronzed brackets; the closet, a

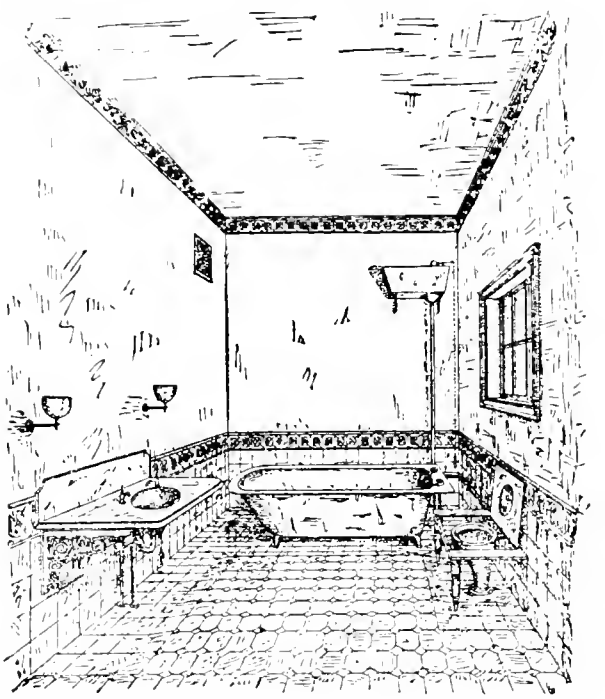
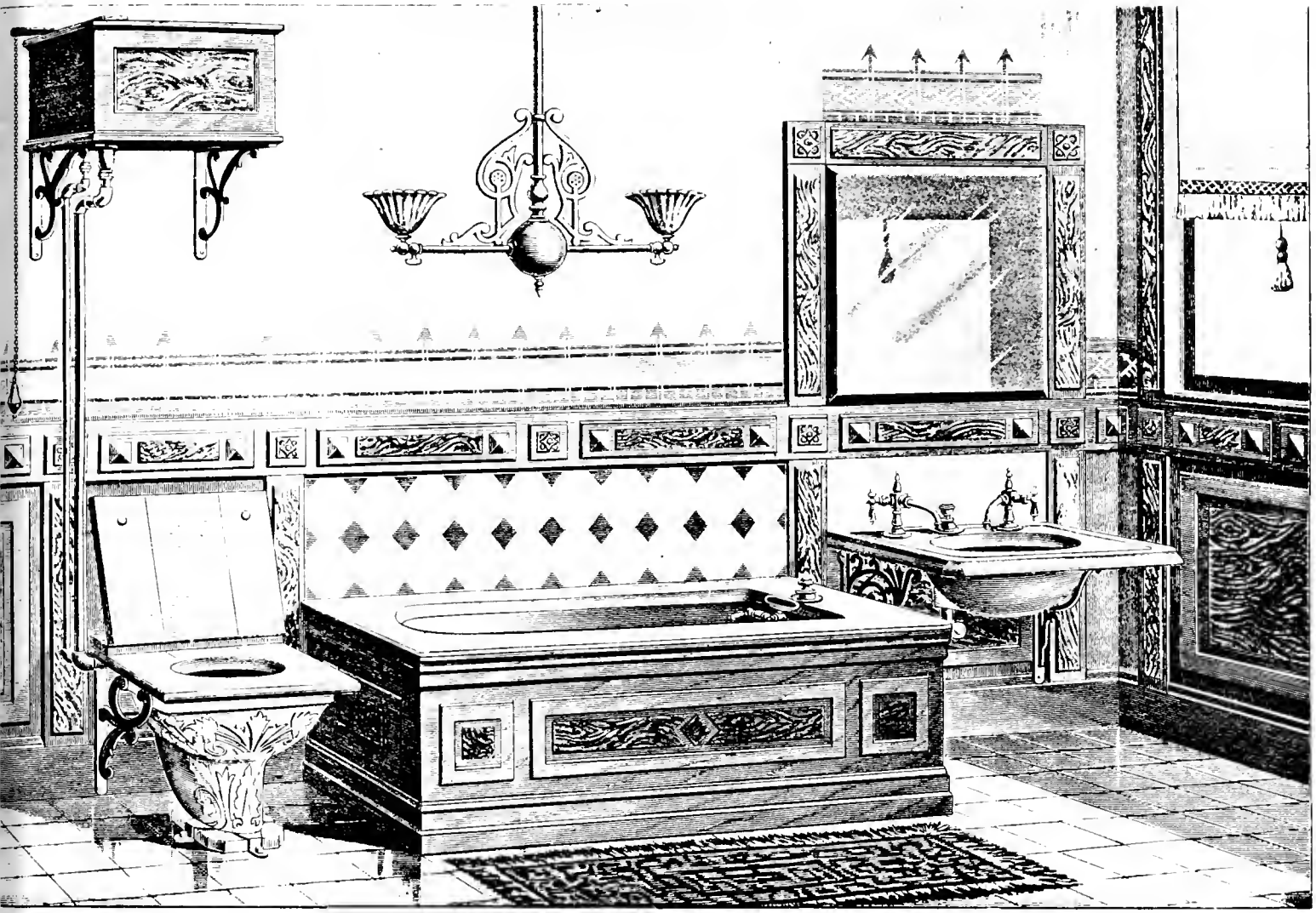


FIG. 255.—Sketch of a Bath-room, fitted up in an open manner, with tiled floor.

porcelain basin or hopper standing free on the floor, has only a hardwood seat, turned up against the wall, if the closet is not in use; the seat rests, if turned down, on two cleats, supported by

Source: William Paul Gerhard, Hints of the Drainage and Sewerage of Dwellings (1884)



Source: Henry Huber and Company, Illustrated Catalogue of Plumbing Specialties (1888)

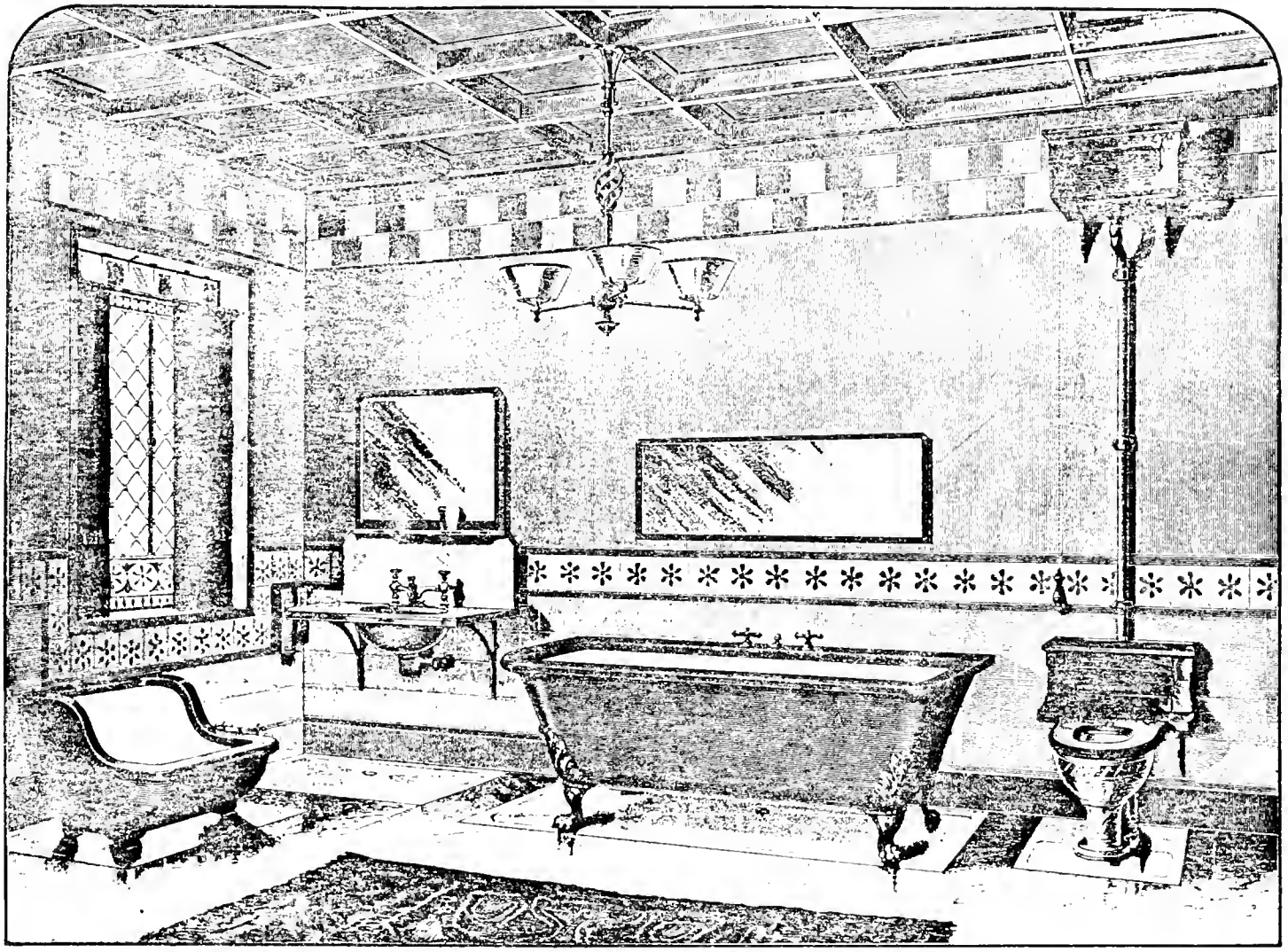


PLATE 3 - G.

WE present this Interior as a suggestion to those who prefer to have all plumbing fixtures set up open, dispensing as far as possible with cabinet work, so that they may be readily accessible on all sides. Obviously, this renders it imperative that the various fixtures, such as Bath Tub, Water Closet, etc., be not only perfect from a practical and sanitary standpoint, but that they be handsome and artistic in appearance, and made and finished in a first-class manner; that we have fully appreciated this will be conceded by a reference to the above Interior and by an examination of the goods themselves.

The Interior comprises Mott's Porcelain-lined Roman Bath, with Supply and Waste Fittings and Hardwood Rim (the Legs can be made of cast brass or bronze to order); the "Inodoro" Embossed All-Porcelain Water Closet, with Cabinet-finish Cistern and Open Seat and Back; Mott's Open Lavatory, with "Nonpareil" Basin or with Oval Basin and "Unique" Waste; Porcelain-lined Seat Bath, with Supply and Waste Fittings and Hardwood Rim (the Legs can be made of cast brass or bronze to order). A detailed illustration and description of these appliances will be found on the following pages of this Catalogue.

Source: J.L. Mott Iron Works, Mott's Illustrated Catalog of Victorian Plumbing Fixtures for Bathrooms and Kitchens (1888)

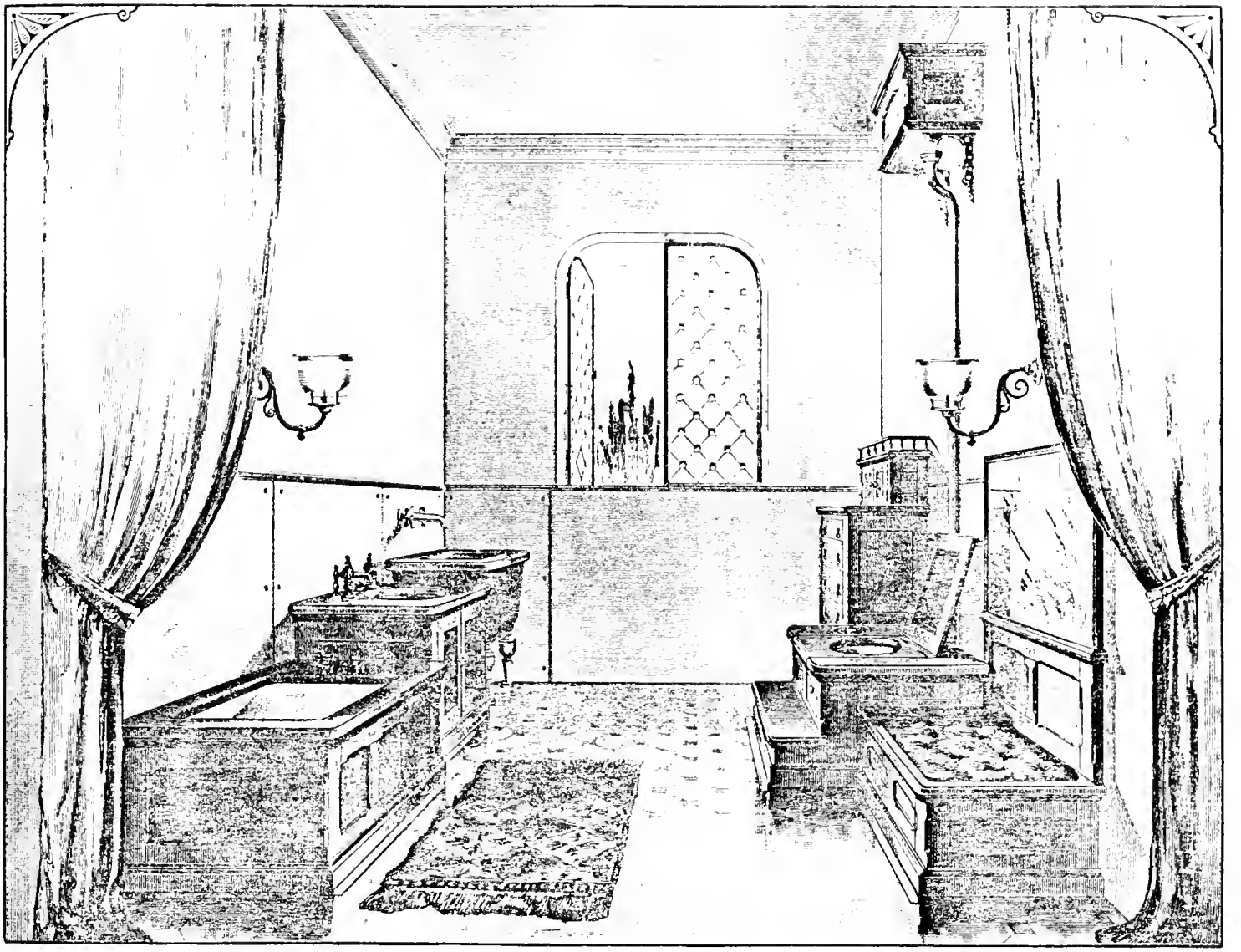


PLATE 4 - G

THE above illustration gives our idea of a Nursery Bath Room; the fixtures consisting of a Children's Bath Tub, with Supply Fittings and Patent "Unique" Waste, no part of Fittings projecting into the Bath, the handles on top are all rounded and finished without any sharp corners, so there can be no chance of children getting bruised or hurt from slipping or falling while in the Bath Tub. The Wash Stand can be fitted with our regular Oval Basin with Patent "Unique" Waste, or with our Patent "Nonpareil" Basin. The height of Wash Stand should be from 24 to 27 inches. The Water Closet shown is the "Inodoro," with No. 41/2 Syphon Cistern, arranged with Seat Pull, the seat being made with a step for children's use. The Slop Sink is our "Imperial" Porcelain, with hardwood rim and bronzed legs, which seems to us a very necessary fixture in a Bath Room exclusively for Nursery use, as it can be used by the nurse not only as a slop receiver, but to wash out and cleanse vessels of all kinds, also to rinse out cloths, etc. The Chiffonier, of course, is intended to hold the children's underclothes, etc., while the top part can be used for soaps and other toilet articles. The upholstered Bench is to stand or seat the children on while dressing; the cover is hinged so the box can be used to hold both towels and wrappers.

Source: J.L. Mott Iron Works, Mott's Illustrated Catalog of Victorian Plumbing Fixtures for Bathrooms and Kitchens (1888)

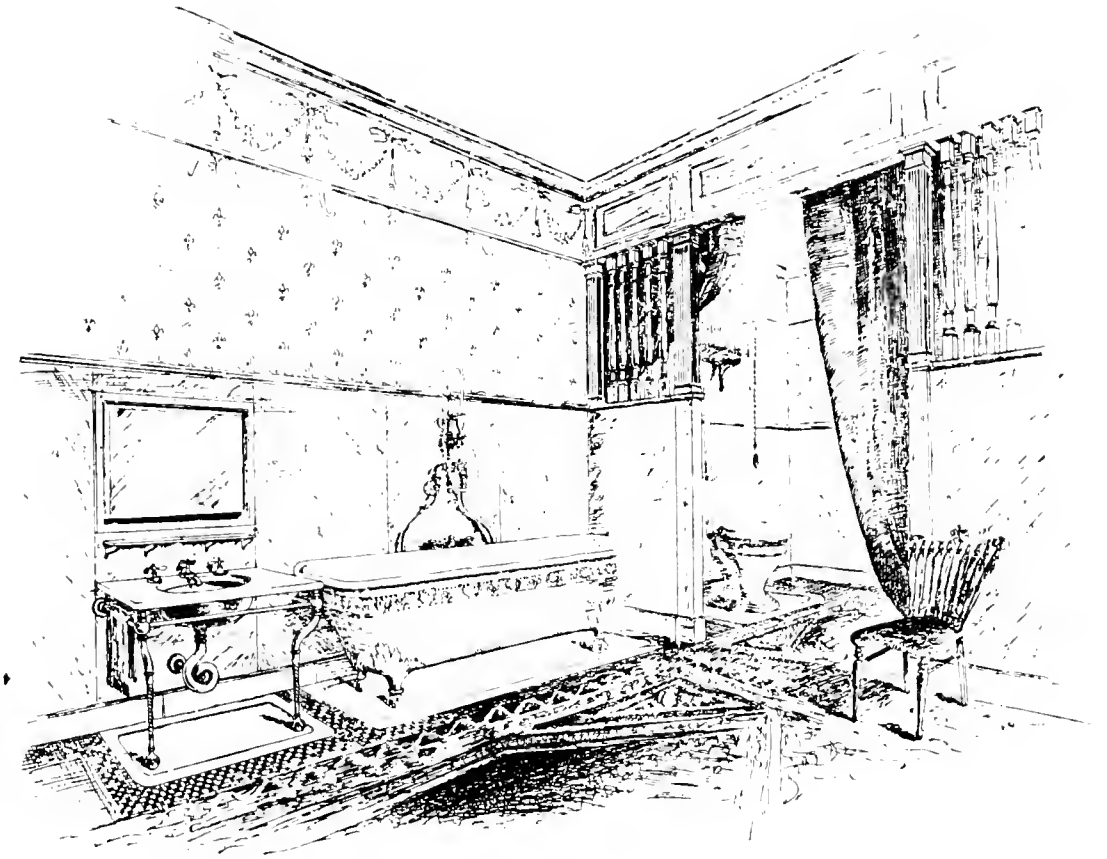


Plate III.—Perspective view of bathroom.

Source: William Paul Gerhard, Sanitary Engineering of Buildings, Vol 1 (1889)

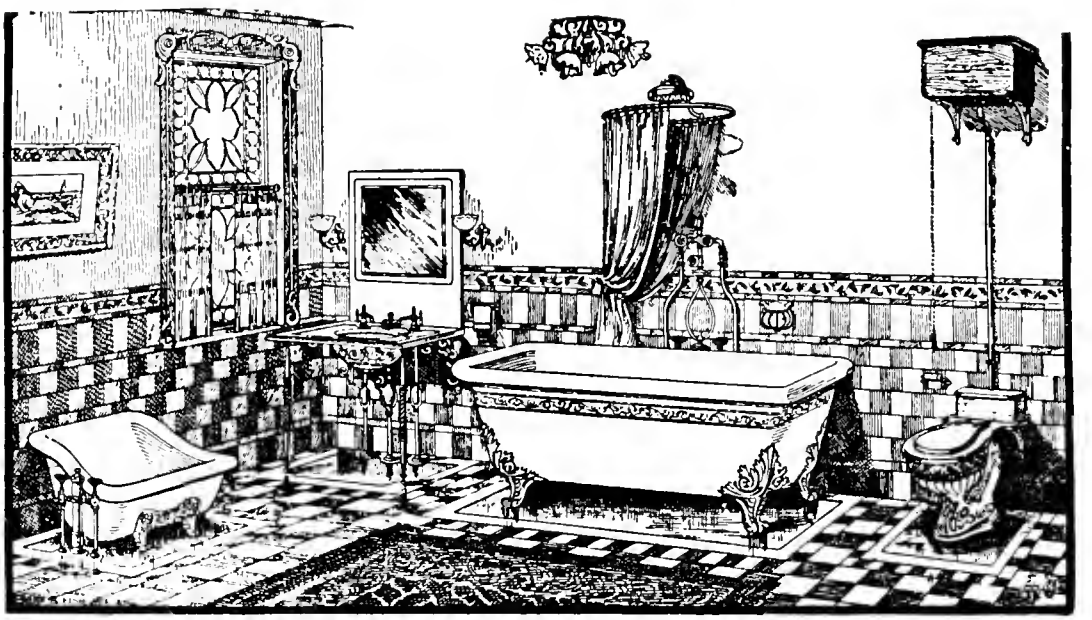


Fig. 83.—*A Modern Bathroom.*

Source: James Joseph Lawler, Lawler's American Sanitary Plumbing (1896)

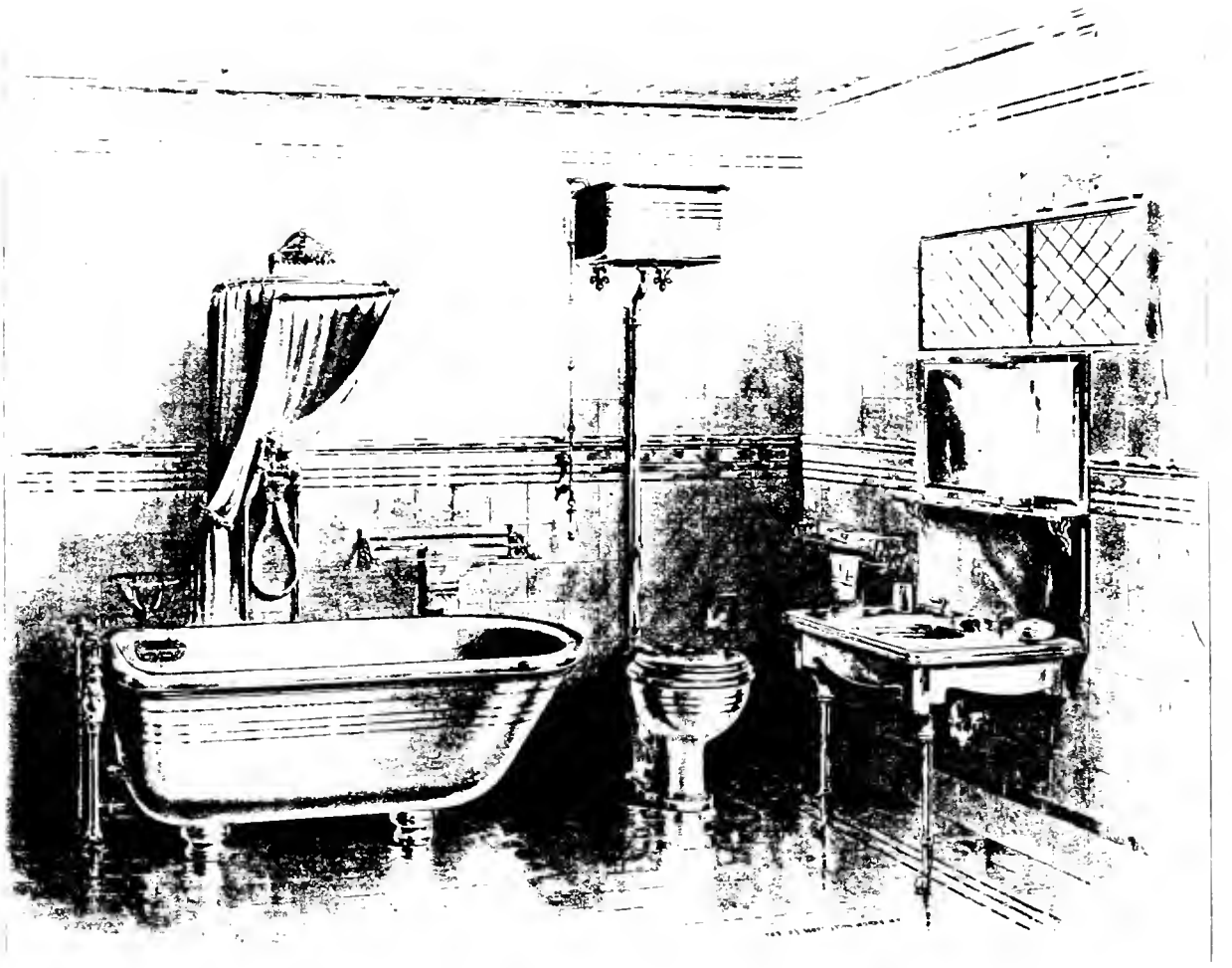


Plate 6-R

BATH ROOM, GOLD LINE DESIGN

COMPRISING

Bath—Imperial Porcelain Roll-rim French Bath, 5 feet 6 inches long, Class A, decorated White with Bead and 3 Gold Lines, with all Nickel-plated Supply Fittings, Unique Waste, Pipes to floor, and Glazed Porcelain Legs . . . $208 00
Nickel-plated Shower and Shampoo, with White Rubber Curtain, Nickel-plated Chain and Hook . . . 40 00

Lavatory—Statuary Marble, Slab 33 by 24 inches, with 16-inch Back, Plate Glass Shelf and Nickel-plated Brackets, Nickel-plated Brass Recess Legs, Cauldon China Basin, 19 by 15 inches, Design 2760 (3 Gold Lines), Nickel-plated Primus Combination Supply and Waste with Cauldon China Handles, Nickel-plated Brass Adjustable Trap for 1½-inch Iron Pipe (less T), (Supply Pipes $2.50 extra) . . . $141 25
Beveled Plate Glass Mirror, with Nickel-plated Brass Frame, 33 by 30 inches . . . 30 00

If with Italian Marble instead of Statuary, deduct $35.75. If Basin is Cauldon Earthenware instead of China, deduct $30.75

Water Closet—The Primo Improved, decorated with 3 Gold Lines, Seat and Cover finished in White Enamel, No 1 Nickel-plated Flush Pipe, No 33 Design L Cistern finished in White Enamel with 3 Gold Lines, White Enameled Brass Brackets, Nickel-plated Guide and Rod with Cauldon China Pull, and Brass Floor Flange . . . $78 00

If Bath is Class B, deduct $55, if Class C, deduct $90. Lavatory Fittings, extra, see pages 80 to 83.

Source: J.L. Mott Iron Works, Catalogue R (1897)

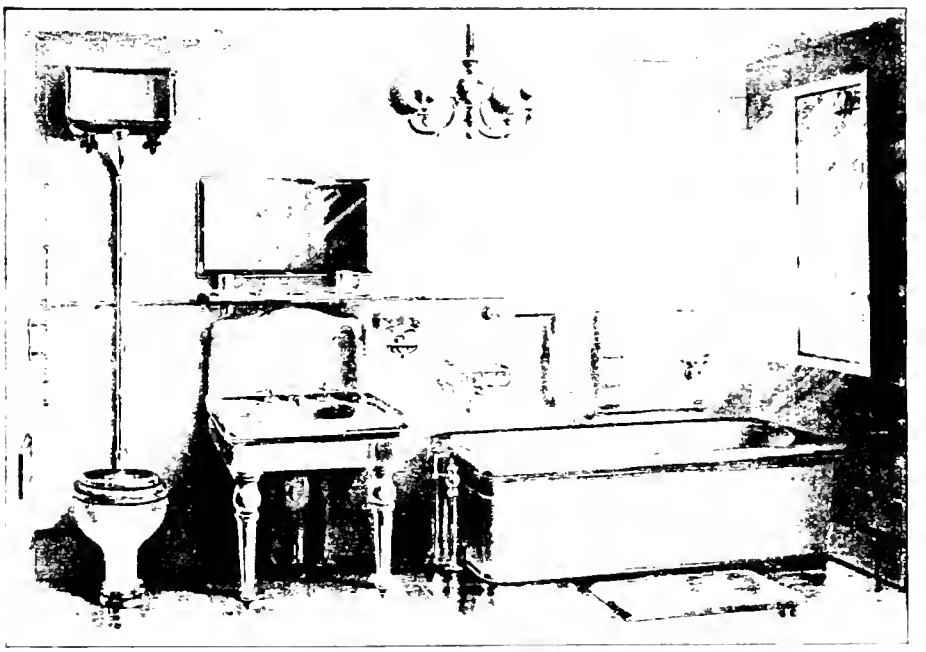
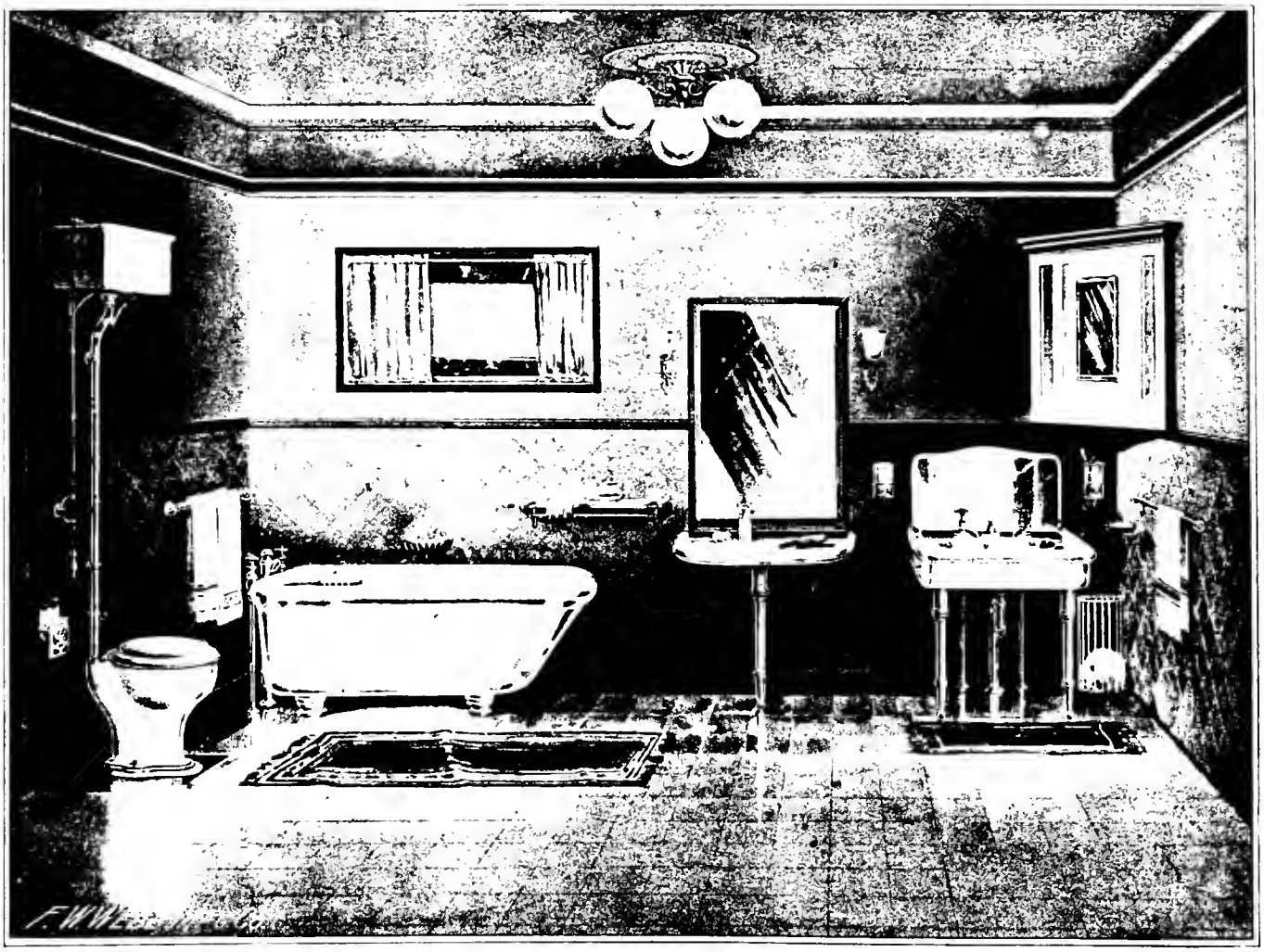


PLATE 2065 R

BATH ROOM—BARONIAL.

Copyright, 1899, by the J. L. Mott Iron Works.

Source: J.L. Mott Iron Works, advertisement in the May, 1899 issue of The Century Illustrated Monthly Magazine



BATH ROOM DESIGN NO. 5.

Source: F.W. Webb Manufacturing Company, Catalogue B (1900?)

APPENDIX G

PLUMBING SUPPLY COMPANIES

REPRODUCTION FIXTURES AND FITTINGS

A-Ball Plumbing Supply
1703 West Burnside Street
Portland, OR 97209
503 228 0026

Antique Baths and Kitchens
S. Chris Rheinschild
2220 Carlton Way
Santa Barbara, CA 93109
805 962 8598

Antique Hardware Store
43 Bridge Street
Frenchtown, NJ 08825
800 422 9982
201 996 4040

The Antique Hardware Store
Rd. #2 Box A, Route 611
Kintnersville, PA 18930
800 422 9982

Artefact
130 South Main St.
Doylestown, PA 18901
215 794 8790

Baldwin Hardware Corporation
841 Wyomissing Boulevard
Box 15048
Reading, PA 19612
215 777 7811

Barclay Products Limited
424 N Oakley Blvd.
Chicago, IL 60612

Bathlines
13-159 The Merchandise Mart
Chicago, IL 60654
312 527 1194

Bathmasters International
1595 Miller Road
Imperial, MO 63052
314 464 3242

Bathroom Machineries
Box 1020
Murphys, CA 95247
209 728 2031

Besco Plumbing and Heating Sales
729 Atlantic Ave. or 66 Von Hillern St.
Boston, MA 02111
617 423 4535

Bona Decorative Hardware
3073 Madison Rd.
Cincinnati, OH 45245
513 321 7877

The Broadway Collection
250 North Troost
Olathe, KS 66061
800 766 1966

Cheviot Products, Inc.
7622 Winston St.
Burnaby, BC V5A 2H4
604 420 8989

Chicago Faucet Co.
2100 Nuclear Dr.
Des Plaines, IL 60018
312 694 4400

Colonial Antiques
5000 W 96th St.
Indianapolis, IN 46268
317 873 2727

Conant Custom Brass, Inc.
270 Pine St.
Burlington, VT 05401
802 658 4482

Consumer Supply Company
1110 West Lake
Chicago, IL 60607
312 666 6080

Country Plumbing
5042 7th St.
Carpinteria, CA 93013
805 684 8685

Crane Plumbing
1235 Hartrey St.
Evanston, IL 60202
312 864 9777

Crawford's Old House Store
550 Elizabeth St.
Wawkesha, WI 53186
800 556 7878

Decorative Hardware Studio
PO Box 627
Chappaqua, NY 10514
914 238 5251

Decorum
235-237 Commercial St.
Portland, ME 04101
207 775 3346

Dentro Plumbing Specialties
63-16 Woodhaven Boulevard
Rego Prk, NY 11374
718 672 6882

Eljer Plumbingware
PO Box 869037
Plano, TX 75086
214 881 7177

Heads Up/Sonoma Woodworks, Inc.
133 Copeland St.
Petaluma, CA 94952
707 762 5548

Hippo Hardware and Trading Co.
1040 E. Burnside
Portland, OR 97214
503 231 1444

Laufen International
Tulsa, OK
800 827 9889

Lenape Products
PO Box 117
Pennington Industrial Center
Pennington, NJ 08534
609 737 0206

Lena's Antique Bathroom Fixtures
PO Box 1022
Bethel Island, CA 94511
415 625 4878

Mac the Antique Plumber
885 57th St. #CAT91
Sacramento, CA 95819
916 454 4507

Mayfair China Corporation
142 22nd St.
Brooklyn, NY 11232

M. Wolchonok and Son
155 E 52nd St.
New York, NY 10023
212 755 2168

New York Marble Works, Inc.
1399 Park Avenue
New York, NY 10029
212 534 2242

Norstad Pottery
253 S 25th St.
Richmond, CA 94804
415 620 0200

Old and Elegant Distributing
10203 Main St. Lane
Bellevue, WA 98004
206 455 4660

The Old House Emporium
205 North Chicago St.
Joliet, IL 60431
815 722 5393

Old House Store
2154 North Halstead St.
Chicago, IL. 60614
312 472 0777

Ole Fashion Things
Lafayette, LA
800 BATHWORLD

Pasternak's Emporium
2515 Morse St.
Houston, TX 77019
713 528 3808

Period Furniture Hardware Company, Inc.
123 Charles St.
Boston, MA 02114
617 227 0758

Puccio-European Marble Works Inc.
232 E 59th St., 6th Floor
New York, NY 10022

Remodelers and Renovators Supply
Box 45478
Boise, ID 83711
800 456 2135

Renovation Concepts
213 Washington Ave., North
Minneapolis, MN 55401
612 884 4288

The Renovator's Supply
4371 Renovator's Old Mill
Millers Falls, MA 01349
413 659 3113

Restoration Works, Inc.
810 Main St.
Buffalo, NY 14202
800 735 3535

Roy Electric Co., Inc.
New York, NY
800 366 3347

Shaw Marble Works
5012 S 38th St.
St. Louis, MO 63135
314 481 5860

Sherle Wagner
60 E 57th St.
New York, NY 10022
212 758 3300

Sign of the Crab
3756 Omec Circle
Rancho Cordova, CA 95742
916 638 2722

The Sink Factory
2140 San Pablo Avenue
Berkeley, CA 94702
415 540 8193

Sonoma Woodworks
133 Copeland St.
Petaluma, CA 94952
800 358 9080

Steptoe's Old House Store
322 Geary Ave.
Toronto, ON M6H 2C7
416 537 5772

Sunrise Specialty Company
2204 San Pablo Ave.
Berkeley, CA 94702
415 845 4751

Tennessee Tub
207 Donelson Pike, Suite 201
Nashville, TN 37214
615 391 3828

Victorian Warehouse
PO Box 3277
Auburn, CA 95604
916 823 0374

Walker Mercantile Co.
PO Box 129
Bellevue, TN 37221
615 646 5084

Watercolors, Inc.
Garrison, NY 10524
914 424 3327

W.T. Weaver and Sons
1208 Wisconsin Ave NW
Washington, DC 20007

REPRODUCTION ACCESSORIES

Accents
316 Spruce St.
Boonton, NJ 07005
201 334 7767

Albany Woodworks, Inc.
PO Box 729
Albany, LA 70711
504 567 1155

American Custom Millwork, Inc.
3904 Newton Rd
PO Box 3608
Albany, GA 31706
912 888 3303

American Olean Tile Company
Design Dept.
S Clark St.
Olean, NY 14760
716 372 4300

Baldwin Hardware Corporation
PO Box 15048
Reading, PA 19612
215 777 7811

Bradbury & Bradbury
PO Box 155-L
Benicia, CA 94510
707 746 1900

The Briare Co.
51 Tec St.
Hicksville, NY 11801
516 935 0700

Caswell-Massey Co., Ltd.
Mail Order Division
111 Eighth Ave.
New York, NY 10010
212 620 0900

Cumberland General Stores Housewares
Route 3
Crossville, TN 38555
615 484 8481

DeWeese Woodworking Company
PO Box 576
Philadelphia, MS 39350
601 656 4951

H & R Johnson
190 Highway 18
East Brunswick, NJ 08816
201 545 9161

Marle Company
170 Summer Street
Stamford, CT 06901
203 348 2645

Nemo Tile Co., Inc.
48 E 21 St.
New York, NY 10010
212 505 0009

NOPE/Non-Polluting Enterprises
342 W 21st St. Suite 5E
New York, NY 10011
800 782 NOPe

Progress Lighting
Erie Ave. and G Street
Philadelphia, PA 19134
215 289 1200

W.F. Norman Corp.
PO Box 323
Nevada, MO 64772
800 641 4038

ANTIQUES AND SALVAGE

Architectural Antiques
801 Washington Ave. North
Minneapolis, MN 55401
612 332 8344

Architectural Antiques, Ltd.
Route 50, Box 146
Aldie, VA 22001
703 327 6159

Architectural Antique Warehouse
PO Box 3065 Station D
Ottowa, ON K1P 6H6
613 526 1818

Crossland Studio
118 East Kingston Ave.
Charlotte, NC 28203
704 332 3032

George Taylor Specialties Company
187 Lafayette St. 4th Floor
New York, NY 10013
212 226 5369

Great American Salvage
34 Cooper Square
New York, NY 10013
212 505 0070

John Kruesel's General Merchandise and Auction Company
22 SW 3rd St.
Rochester, MN 55902
507 289 8049

Metropolitan Artifacts, Inc.
4783 Peachtree Road
Atlanta, GA 30341
404 986 0007

NB Housewreckers and Salvage
396 Somerset St.
New Brunswick, NJ 08901
201 247 1071

New York Replacement Parts Corp.
1464 Lexington Ave.
New York, NY 10128
212 534 0818

Off the Wall, Architectural Antiques
950 Glenneyre Street
Laguna Beach, CA 92651
714 497 4000

Ohmega Salvage
2407 San Pablo Ave.
Berkeley, CA 94702
415 843 7368

Philadelphia Architectural Salvage
1214 N 26th St.
Philadelphia, PA
215 236 9339

The Renovation Source
3512 N. Southport
Chicago, IL 60657
312 327 1250

Salvage One Architectural Artifacts
1524 S Sangamon St.
Chicago, IL 60608
312 733 0098

The Second Chance
230 Seventh St.
Macon, GA 31202
912 742 7874

Southern Accents Architecutral Antiques
308 2nd Ave.
Cullman, AL 35055
205 737 0554 or 734 4799

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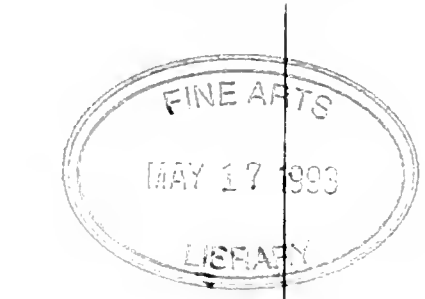

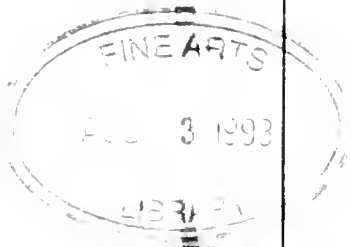

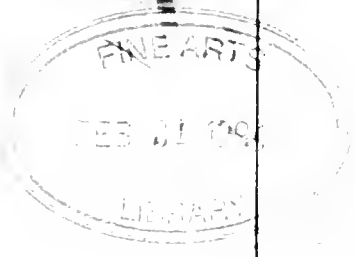

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